

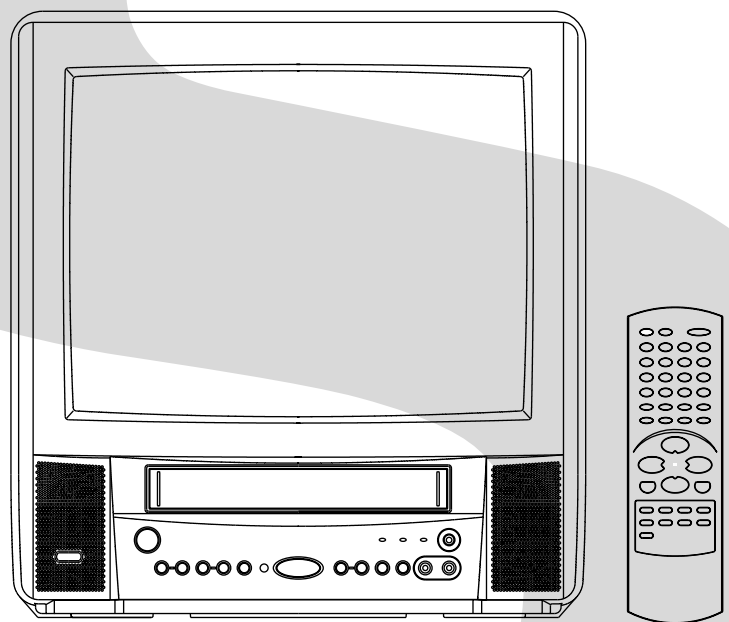
TOSHIBA

FILE NO. 140-200112

SERVICE MANUAL

COLOR TELEVISION/ VIDEO CASSETTE RECORDER

MV13L2W



SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

2. AVOID AN ELECTRIC SHOCK

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.

3. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.

Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a  mark, the designated parts must be used.

4. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

5. TAKE CARE TO DEAL WITH THE CATHODE-RAY TUBE

In the condition that an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion. However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.

6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.

Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.

Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

7. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

(INSULATION CHECK PROCEDURE)

1. Unplug the plug from the AC outlet.
2. Remove the antenna terminal on TV and turn on the TV.
3. Insulation resistance between the cord plug terminals and the external exposure metal **[Note 2]** should be more than 1M ohm by using the 500V insulation resistance meter **[Note 1]**.
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

[Note 1]

If you have not the 500V insulation resistance meter, use a Tester.

[Note 2]

External exposure metal: Antenna terminal
Earphone jack

HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the VERSION LETTER.)

1. MODEL NUMBER and VERSION LETTER

The MODEL NUMBER can be found on the back of each product and the VERSION LETTER can be found at the end of the SERIAL NUMBER.

2. PART NO. and DESCRIPTION

You can find it in your SERVICE MANUAL.

GENERAL SPECIFICATIONS

G-1	TV System	CRT	CRT Size / Visual Size	13 inch / 335.4mmV
			CRT Type	Normal
			Deflection	90 degree
			Magnetic Field BV/BH	+0.45G / 0.18G
		Color System		NTSC
		Speaker		1Speaker
			Position	Front
			Size	1.5 x 2.5 Inch
			Impedance	8 ohm
		Sound Output	MAX	1.5 W
G-2	VCR System		10%(Typical)	1.0 W
		System		VHS
				Player / Recorder
		Video System		NTSC
		Hi-Fi STEREO		No
		NTSC PB		-
		Deck	DECK	OVD-6S
			Loading System	Front
			Motor	3
		Heads	Video Head	2 Head
			FM Audio Head	No
			Audio /Control	Mono/Yes
			Erase(Full Track Erase)	Yes
		Tape Rec	PAL	-
		Speed	NTSC	SP/SLP(EP)
		Play	PAL	-
			NTSC	SP/SLP(EP)
G-3	Tuning System	Broadcasting System		US Sysytem M
		Tuner and	System	1Tuner
		Receive CH	Destination	USA+CATV
			Tuning System	F-Synth
			Input Impedance	VHF/UHF 75 ohm
			CH Coverage	2-69, 4A,A-5-A-1, A-I, J-W,W+1-W+84
		Intermediate	Picture(FP)	45.75MHz
		Frequency	Sound(FS)	41.25MHz
			FP-FS	4.5MHz
		Preset CH		No
G-4	Signal	Stereo/Dual TV Sound		No
		Video Signal	Input Level	1 V p-p/75 ohm
			Output Level	-
			S/N Ratio (Weighted)	50 dB
			Horizontal Resolution at SP Mode	220 Lines
		Audio Signal	Input Level	RCA-8dB/50Kohm
			Output Level	-
		Hi-Fi Audio Signal	Dynamic Range : More than	-
			Wow And Flutter : Less than	-
			Channel Separation : More than	-
G-5	Power	Power Source	AC	120V 60Hz
			DC	-
		Power Consumption	at AC	65 W at 120V 60Hz
			at DC	-
			Stand by (at AC)	5 W at 120V 60 Hz
			Per Year	-
G-6	Regulation	Protector	Power Fuse	Yes
			Dew Sensor	No
			Safety	UL
G-7	Temperature		Radiation	FCC
			X-Radiation	DHHS
			Operation	+50C ~ +40oC
G-8	Operating Humidity		Storage	-20oC ~ +60oC
				Less then 80% RH

GENERAL SPECIFICATIONS

G-9	On Screen Display	Menu		Yes
		Menu	Type	Character
		Timer Rec Set		Yes
		Channel Setup		Yes
		TV/CATV		Yes
		Auto ch Memory		Yes
		Add/Delete		Yes
		Guide ch Set		No
		TV Setup		Yes
		V-chip Set		Yes
		On/Off Timer Set		Yes
		Picture		Yes
		Audio		No
		Sap On/Off		No
		Auto Repeat On/Off		Yes
		System Setup		Yes
		Clock Set		Yes
		Language		Yes
		Auto Clock On/Off		Yes
		Standard Time		Yes
		Daylight Saving Time		Yes
		Commercial Advance		No
		Marking On/Off		No
		Blueback On/Off		No
		Playback Auto/Manual		No
		Unmarked Tape		No
		Movie Advance		No
		Go To Movie		No
		Go To Preview		No
		G-CODE(or SHOWVIEW or PLUSCODE)No. Entry		No
		Clock		Yes
		CH/AV		Yes
		Tape Counter(Linear Counter)		Yes
		Tape Speed		Yes
		Sleep Time		Yes
		Stereo/Audio Output		No
		Bilingual		No
		SAP		No
		Control	Volume	Yes
		Level	Bright / Contrast / Sharpness / Color	Yes
			Tint	Yes
			Bass/Treble/Balance	No
			Manual Tracking	Yes
		Play/Stop/FF/Rew/Rec/OTR/T-Rec/Pause/Eject/Tape In (Symbol Mark)		Yes
		Auto Tracking/Manual Tracking		Yes
		Caption / Text		Yes
		Index		No
		Muting		Yes
		Hi-Fi ,SAP		No
		Repeat		Yes
		Zero Return		No
		DEW		No
G-10	OSD Language	OSD Language Setting		English French Spanish English
G-11	Clock,Timer and Timer Back-up	Calendar		1990/1/1 ~ 2081/12/31
		Timer Events		8 prog/ 1 month
		One Touch Recording Max Time		5 Hours
		OTPB Valid Time		No
		Sleep Timer	Max Time	120 min.
			Step	10 min.
		On/Off Timer		1 prog.
		Auto Shut Off	No Signal	15 min.
			No Operation	-
		Timer Back-up (at Power Off Mode)		5 sec.

GENERAL SPECIFICATIONS

G-12	Remote Control	Unit	RC-DQ
		Glow in Dark Remocon	No
		Format	NEC
		Custom Code	40-BFh , 44-BBh
		Power Source	3V
		Voltage(D.C)	UM-4 x 2 pcs
		UM size x pcs	
		Total Keys	42 Keys
		Keys	
		Power	Yes
		1	Yes
		2	Yes
		3	Yes
		4	Yes
		5	Yes
		6	Yes
		7	Yes
		8	Yes
		9	Yes
		0	Yes
		CH Up	Yes
		CH Down	Yes
		Volume Up	Yes
		Volume Down	Yes
		Input Select	Yes
		Play	Yes
		F.Fwd	Yes
		Rew	Yes
		Pause/Still	Yes
		Stop	Yes
		Rec/OTR	Yes(2Keys)
		Eject	Yes
		Counter Reset	Yes
		Speed	Yes
		Timer Rec	Yes(2Keys)
		TV Monitor	No
		Quick View	Yes
		Program	Yes
		Slow	No
		Auto Tracking	Yes
		Set/Tracking+	Yes
		Set/ Tracking -	Yes
		Menu	Yes
		Enter	Yes
		Cancel	Yes
		Call	Yes
		TV/Caption/Text	Yes
		Sleep Timer	Yes
		Muting	Yes
		Zero Return	Yes
		CM Skip	Yes
		Audio Select	No
G-13	Features	Auto Head Cleaning	Yes
		Auto Tracking	Yes
		HQ (VHS Standard High Quality)	Yes
		Auto Power On, Auto Play, Auto Rewind, Auto Eject	Yes
		VIDEO PLUS+(SHOWVIEW,G-CODE)	No
		Auto Clock	Yes
		Forward / Reverse Picture Search	Yes
		One Touch Playback	No
		Auto CH Memory	Yes
		Closed Caption	Yes
		TV Auto Shut off Function	Yes
		End Call	No
		Index Search	No
		SQPB	No
		CATV	Yes
		CM Skip(30sec x 6 Times)	Yes
		Comb Filter	No
		TV Monitor	No
		Program Extend	No
		Choke Coil	No
		Energy Star	Yes
		Dirty Head	No
		V-chip	Yes
		USA V-chip	No
		CANADA V-chip	No
		CM Advance	No
		Movie Advance	No
		FBT Leak Test Protect	Yes

GENERAL SPECIFICATIONS

G-14	Accessories	Owner's Manual	Language	English
			w/Guarantee Card	Yes
		Remote Control Unit		Yes
		Rod Antenna		No
			Poles	-
			Terminal	-
			w/300 ohm to 75 ohm Antenna Adapter	-
		Loop Antenna		No
			Terminal	-
		U/V Mixer		No
		DC Car Cord (Center+)		No
		Guarantee Card		No
		Warning Sheet		No
		Circuit Diagram		No
		Antenna Change Plug		No
		Service Facility List		No
		Important Safeguard		No
		Dew/AHC Caution Sheet		No
		AC Plug Adapter		No
		Quick Set-up Sheet		No
G-15	Interface	Battery		Yes
			UM size x pcs	UM-4 x 2 pcs
		AC Cord		No
		AV Cord (2Pin-1Pin)		No
		Registration Card		Yes
		ESP Card		Yes
		300 ohm to 75 ohm Antenna Adapter		Yes
		Switch	Power	Yes
			Play	Yes
			Pause/Still	No
			System Select	No
			One Touch Playback	No
			Channel Up	Yes
			Channel Down	Yes
			F.FWD/Cue	Yes
			Eject/Stop	Yes
			Main Power SW	No
			Volume Up	Yes
			Volume Down	Yes
			Rew/Rev	Yes
			Rec/OTR	Yes
			Input Select	Yes
		Indicator	Power	Red
			Rec/OTR	Red
			T-Rec	Red
			On Timer	No
			CS	No
		Key Light up	Rec/OTR	No
			One Touch Playback	No
			Play	No
		Terminals	Front	Video Input
				Audio Input
				Other Terminal
				Head Phone(Stereo & Mono, 3.5mm)
			Rear	Video Input
				Audio Input
				Video Output
				Audio Output
				Euro Scart
				Diversity
				Ext Speaker
				DC Jack 12V(Center +)
				VHF/UHF Antenna Input
				F Type
				AC Inlet
				No
G-16	Set Size	Approx. W x D x H (mm)		362 x 369 x 382
G-17	Weight	Net (Approx.)		11.0 kg (24.3 lbs)
		Gross (Approx.)		12.5 kg (27.6 lbs)

GENERAL SPECIFICATIONS

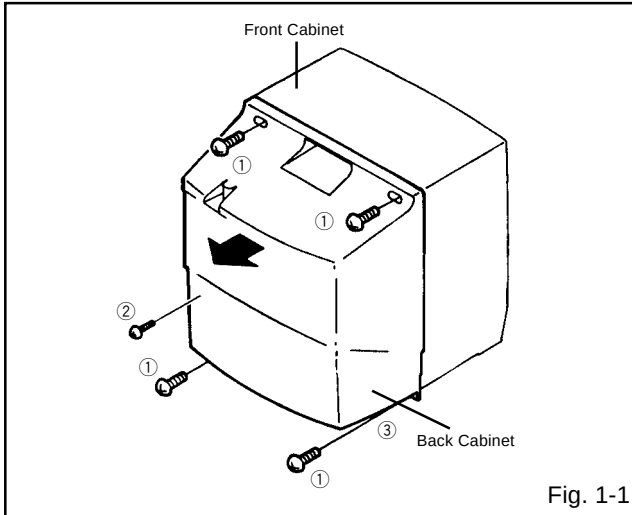
G-18	Carton	Master Carton		No	
		Content		-	
		Material		-	
		Dimensions W x D x H(mm)		-	
		Description of Origin		-	
		Gift Box		Yes	
		Material		Double/White	
		Dimensions W x D x H(mm)		423 x 447 x 443	
		Design		As per Buyer's	
		Description of Origin		Yes	
		Drop Test		Natural Dropping At	
G-19	Cabinet Material	Height (cm)		62	
		Container Stuffing(40' container)		700 Sets	
		Cabinet Front		PS 94V0 DECABROM	
		Cabinet Rear		PS 94V0 DECABROM	
		Jack Panel		PS 94V0	

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

1-1: BACK CABINET (Refer to Fig. 1-1)

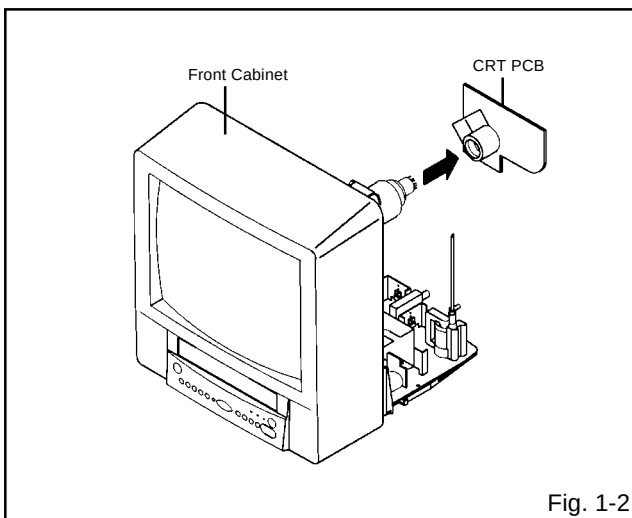
1. Remove the 4 screws ①.
2. Remove the screw ②.
3. Remove the AC cord from the AC cord hook ③.
4. Remove the Back Cabinet in the direction of arrow.



1-2: CRT PCB (Refer to Fig. 1-2)

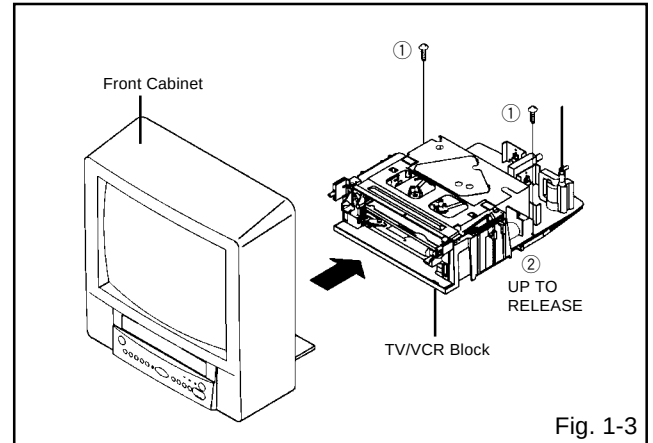
CAUTION: BEFORE REMOVING THE ANODE CAP, DISCHARGE ELECTRICITY BECAUSE IT CONTAINS HIGH VOLTAGE. BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB, UNPLUG THE POWER CORD FROM THE AC SOURCE.

1. Remove the Anode Cap.
(Refer to REMOVAL OF ANODE CAP)
2. Disconnect the following connectors:
(CP801 and CP851B).
3. Remove the CRT PCB in the direction of arrow.



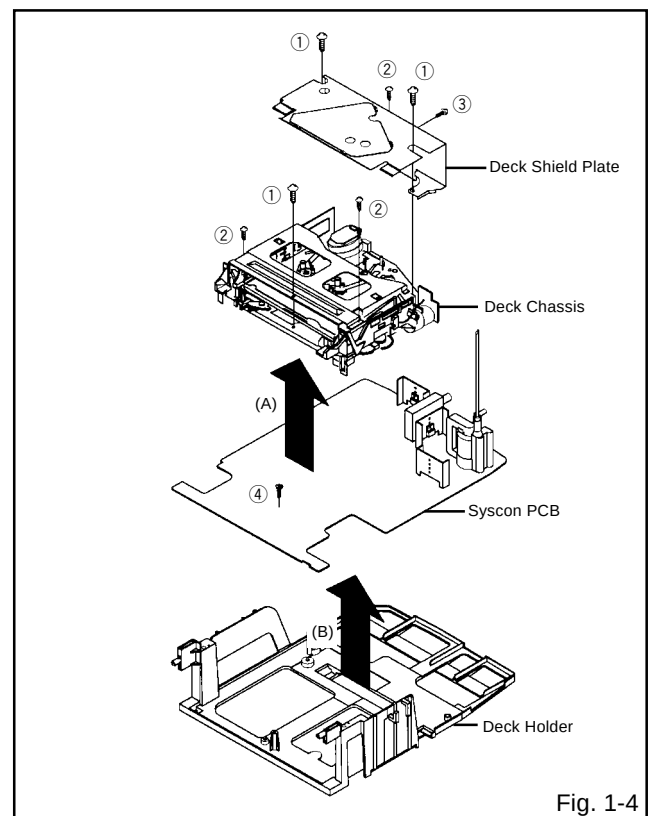
1-3: TV/VCR BLOCK (Refer to Fig. 1-3)

1. Remove the 2 screws ①.
2. Disconnect the following connectors:
(CP352, CP353, CP354, CP401, CP502 and CP503).
3. Unlock the support ②.
4. Remove the TV/VCR Block in the direction of arrow.



1-4: DECK CHASSIS AND SYSCON PCB (Refer to Fig. 1-4)

1. Remove the 3 screws ①.
2. Remove the 3 screws ②.
3. Remove the screw ③.
4. Disconnect the following connectors:
(CP1004, CP1005, CP1006, CP4001, CP4002 and CP4003).
5. Remove the Deck Chassis and Deck Shield Plate in the direction of arrow (A).
6. Remove the screw ④.
7. Remove the Syscon PCB in the direction of arrow (B).



DISASSEMBLY INSTRUCTIONS

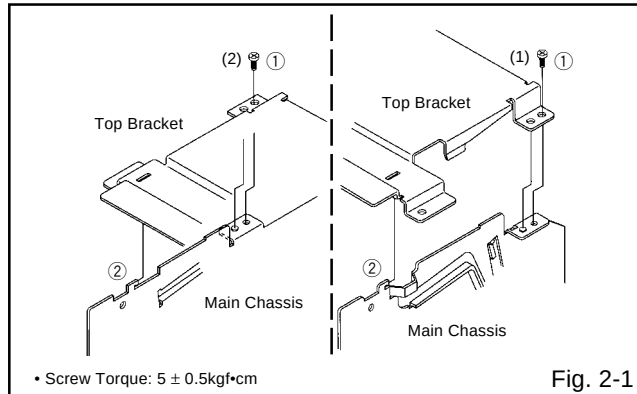
2. REMOVAL OF DECK PARTS

2-1: TOP BRACKET (Refer to Fig. 2-1)

1. Remove the 2 screws ①.
2. Slide the 2 supports ② and remove the Top Bracket.

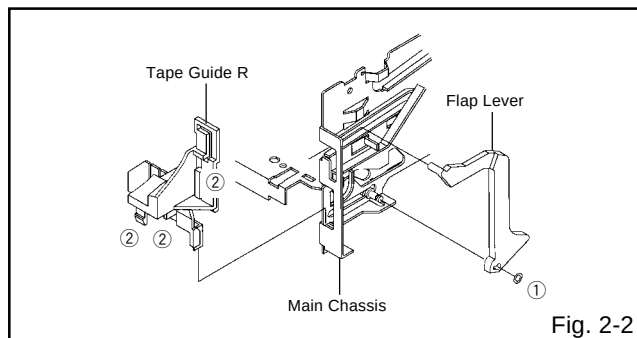
NOTE

When you install the Top Bracket, install the screw (1) first, then install the screw (2).



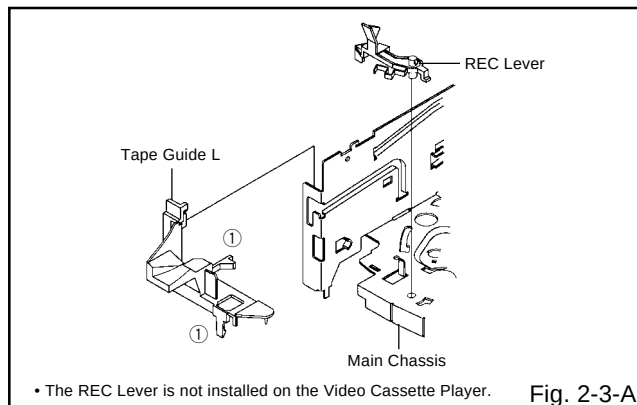
2-2: FLAP LEVER/TAPE GUIDE R (Refer to Fig. 2-2)

1. Move the Cassette Holder Ass'y to the back side.
2. Remove the Polyslider Washer ①.
3. Remove the Flap Lever.
4. Unlock the 3 supports ② and remove the Tape Guide R.



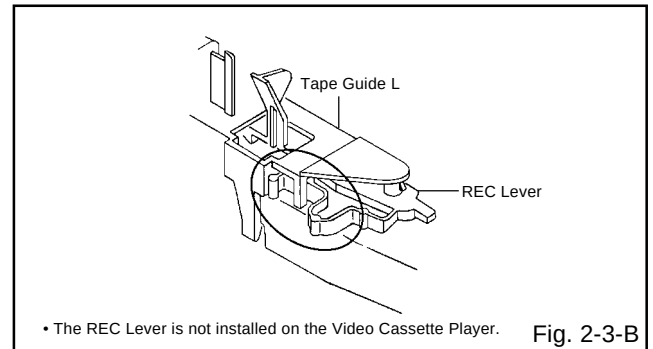
2-3: TAPE GUIDE L (Refer to Fig. 2-3-A)

1. Move the Cassette Holder Ass'y to the back side.
2. Unlock the 2 supports ① and remove the Tape Guide L.
3. Remove the REC Lever. (Recorder only)



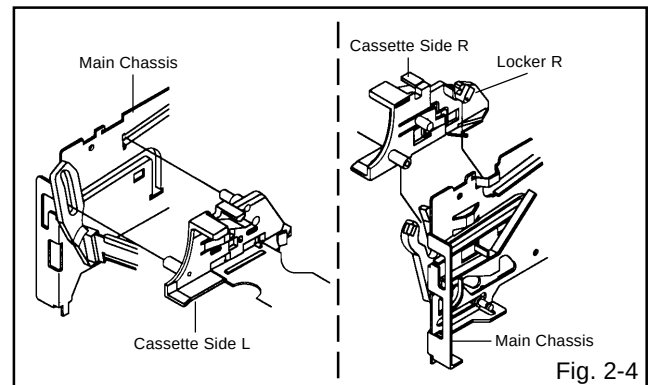
NOTE

When you install the Tape Guide L, install as shown in the circle of Fig. 2-3-B. (Refer to Fig. 2-3-B)



2-4: CASSETTE HOLDER ASS'Y (Refer to Fig. 2-4)

1. Move the Cassette Holder Ass'y to the front side.
2. Push the Locker R to remove the Cassette Side R.
3. Remove the Cassette Side L.

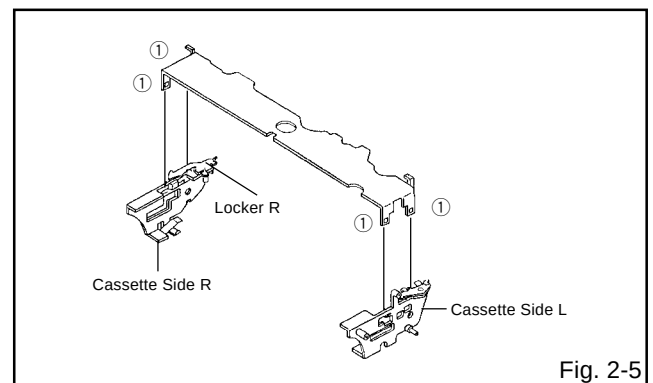


2-5: CASSETTE SIDE L/R (Refer to Fig. 2-5)

1. Unlock the 4 supports ① and then remove the Cassette Side L/R.

NOTE

When you install the Cassette Side R, be sure to move the Locker R after installing.



DISASSEMBLY INSTRUCTIONS

2-6: LINK UNIT (Refer to Fig. 2-6)

1. Set the Link Unit to the Eject position.
2. Remove the (A) side of the Link Unit first, then remove the (B) side.

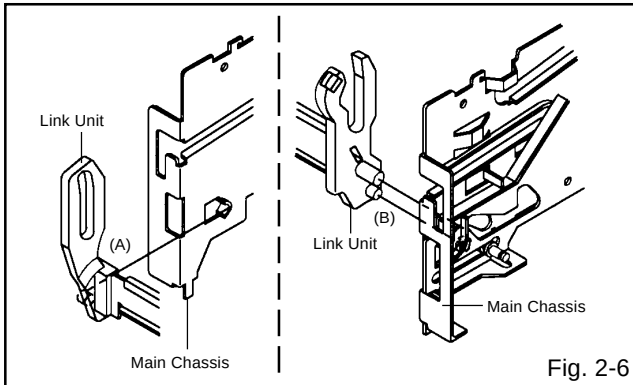


Fig. 2-6

2-7: LOADING MOTOR ASS'Y (Refer to Fig. 2-7)

1. Remove the Link Lever.
2. Remove the screw ①.
3. Remove the Loading Motor Ass'y.
4. Unlock the 2 supports ② and remove the Deck PCB (BOT).

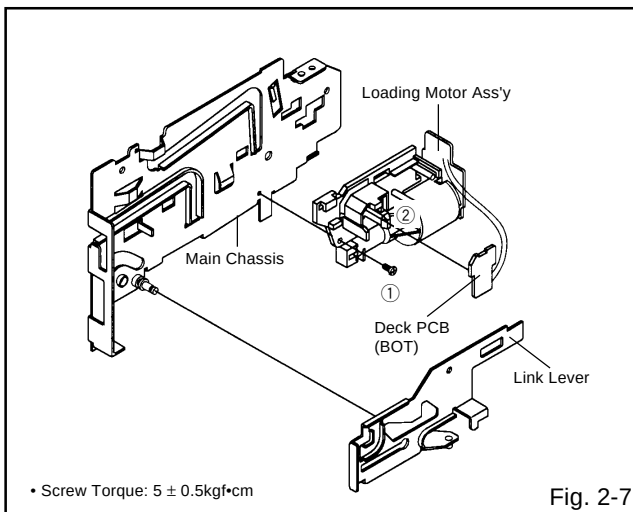


Fig. 2-7

2-8: SENSOR COVER L3 (Refer to Fig. 2-8)

1. Unlock the support ① and remove the Sensor Cover L3.

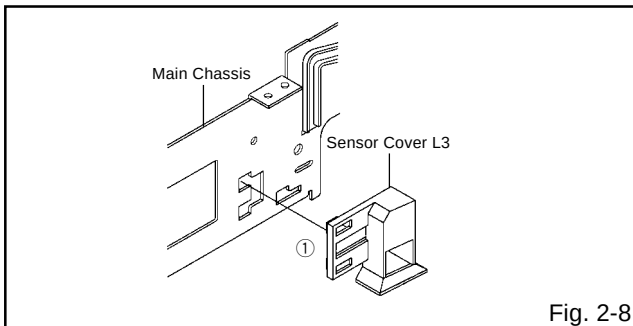


Fig. 2-8

2-9: TENSION ASS'Y (Refer to Fig. 2-9-A)

1. Move the Inclined S Ass'y to the back side.
2. Remove the Tension Spring.
3. Unlock the support ① and remove the Tension Arm Ass'y.
4. Remove the Tension Adjust.
5. Unlock the 2 supports ② and remove the Tension Band Ass'y.
6. Unlock the support ③ and remove the Tension Holder.
7. Remove the SS Brake Spring.
8. Remove the SS Arm Brake.

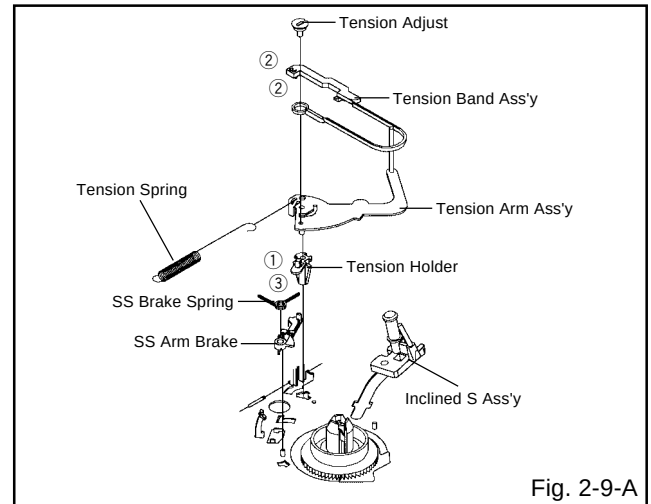


Fig. 2-9-A

NOTE

When you install the Tension Adjust, install as shown in Fig. 2-9-B. (Refer to Fig. 2-9-B)

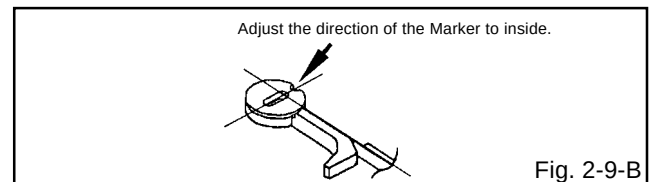


Fig. 2-9-B

2-10: T BRAKE ASS'Y (Refer to Fig. 2-10)

1. Remove the T Brake Spring.
2. Remove the T Brake Ass'y.

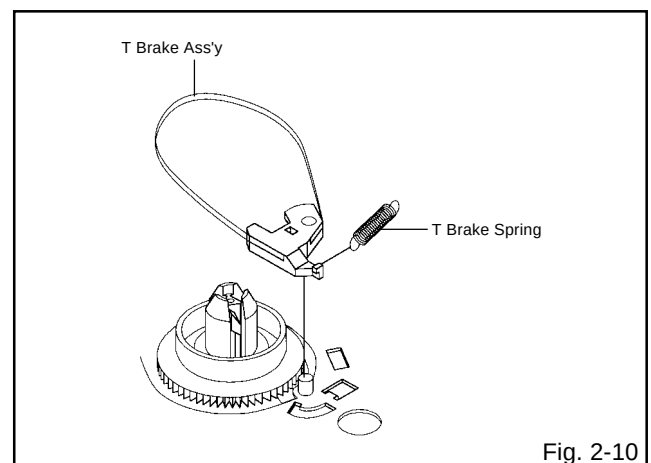


Fig. 2-10

DISASSEMBLY INSTRUCTIONS

2-11: S REEL/T REEL (Refer to Fig. 2-11)

1. Remove the S Reel and T Reel.
2. Remove the 2 Polyslider Washers ①.

NOTE

1. Take care not to damage the gears of the S Reel and T Reel.
2. The Polyslider Washer may be remained on the back of the reel.
3. Take care not to damage the shaft.
4. Do not touch the section "A" of S Reel and T Reel. (Use gloves.) **(Refer to Fig. 2-11)** Do not adhere the stains on it.
5. When you install the reel, clean the shaft and oil it. (If you do not oil, noise may be heard in FF/REW mode.)
6. After installing the reel, adjust the height of the reel. **(Refer to MECHANICAL ADJUSTMENT)**

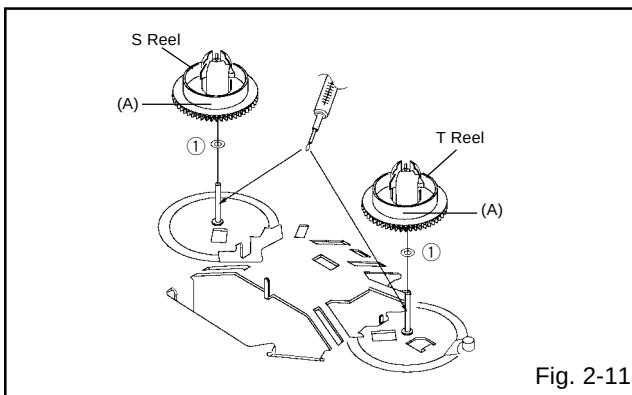
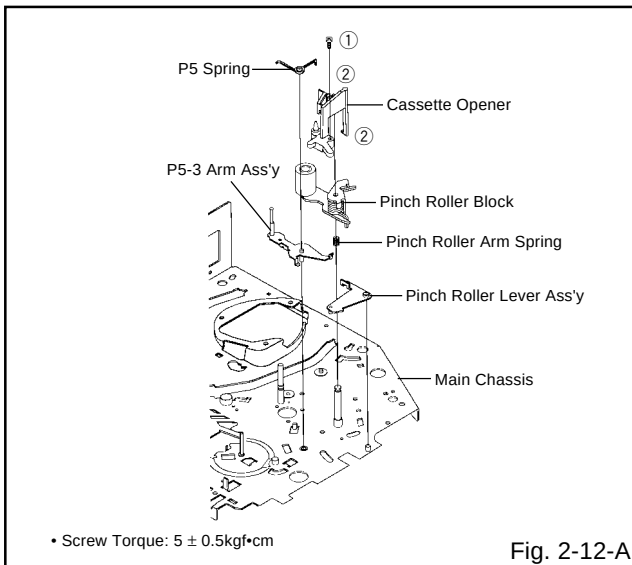


Fig. 2-11

2-12: PINCH ROLLER BLOCK/P5-3 ARM ASS'Y (Refer to Fig. 2-12-A)

1. Remove the P5 Spring.
2. Remove the screw ①.
3. Unlock the 2 supports ② and remove the Cassette Opener.
4. Remove the Pinch Roller Block, Pinch Roller Arm Spring, Pinch Roller Lever Ass'y and P5-3 Arm Ass'y.



• Screw Torque: $5 \pm 0.5 \text{ kgf} \cdot \text{cm}$

Fig. 2-12-A

NOTE

1. Do not touch the Pinch Roller. (Use gloves.)
2. When you install the Pinch Roller Block, install as shown in the circle of Fig. 2-12-B. **(Refer to Fig. 2-12-B)**

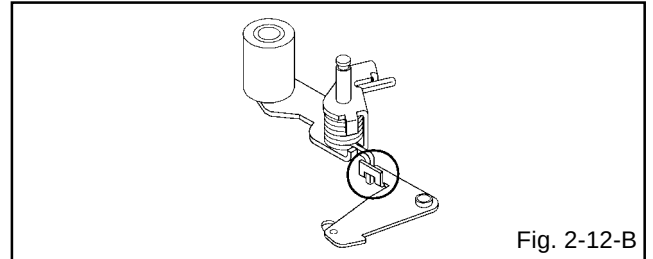


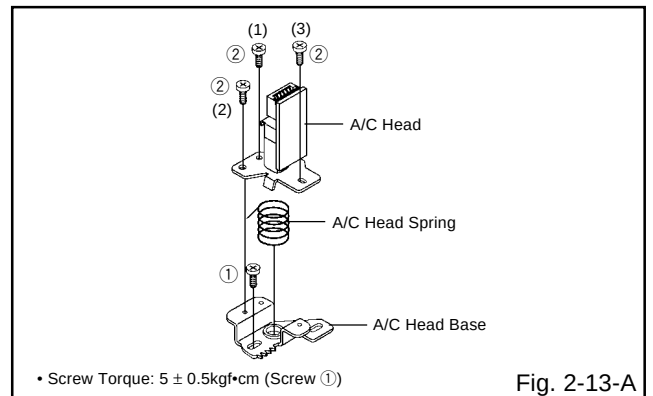
Fig. 2-12-B

2-13: A/C HEAD (Refer to Fig. 2-13-A)

1. Remove the screw ①.
2. Remove the A/C Head Base.
3. Remove the 3 screws ②.
4. Remove the A/C Head and A/C Head Spring.

NOTE

1. Do not touch the A/C Head. (Use gloves.)
2. When you install the A/C Head Spring, install as shown in Fig. 2-13-B. **(Refer to Fig. 2-13-B)**
3. When you install the A/C Head, tighten the screw (1) first, then tighten the screw (2), finally tighten the screw (3).



• Screw Torque: $5 \pm 0.5 \text{ kgf} \cdot \text{cm}$ (Screw ①)

Fig. 2-13-A

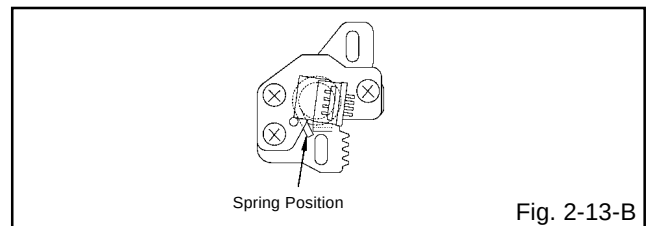
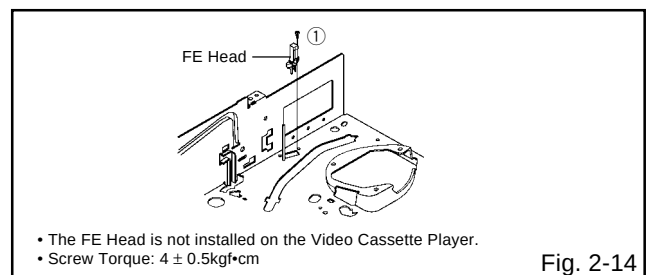


Fig. 2-13-B

2-14: FE HEAD (RECORDER ONLY) (Refer to Fig. 2-14)

1. Remove the screw ①.
2. Remove the FE Head.



• The FE Head is not installed on the Video Cassette Player.
• Screw Torque: $4 \pm 0.5 \text{ kgf} \cdot \text{cm}$

Fig. 2-14

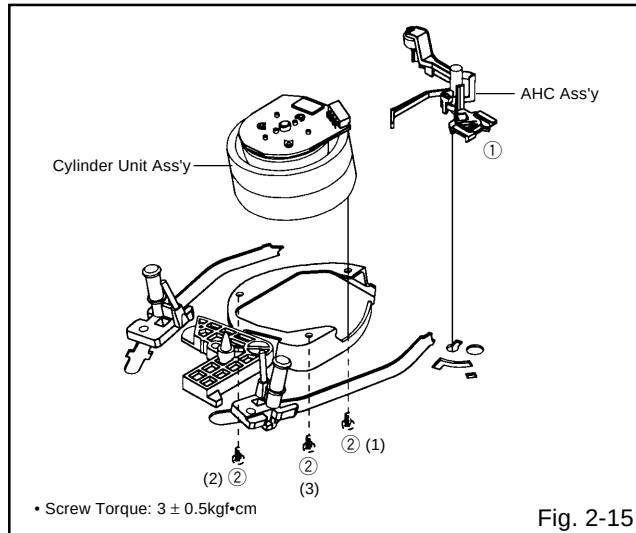
DISASSEMBLY INSTRUCTIONS

2-15: AHC ASS'Y/CYLINDER UNIT ASS'Y (Refer to Fig. 2-15)

1. Unlock the support ① and remove the AHC Ass'y.
2. Remove the 3 screws ②.
3. Remove the Cylinder Unit Ass'y.

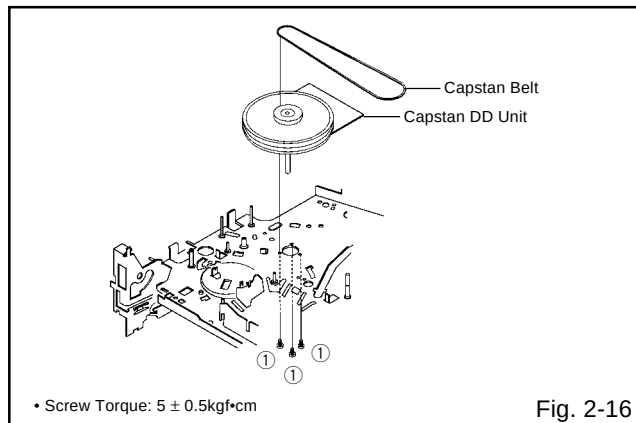
NOTE

When you install the Cylinder Unit Ass'y, tighten the screws from (1) to (3) in order while pulling the Ass'y toward the left front direction.



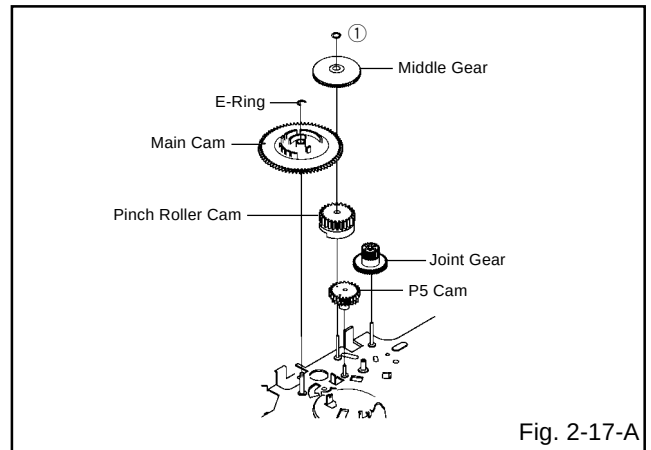
2-16: CAPSTAN DD UNIT (Refer to Fig. 2-16)

1. Remove the Capstan Belt.
2. Remove the 3 screws ①.
3. Remove the Capstan DD Unit.



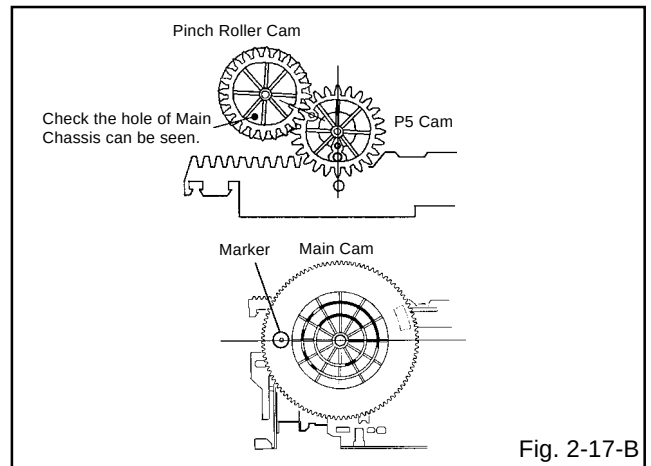
2-17: MIDDLE GEAR/MAIN CAM (Refer to Fig. 2-17-A)

1. Remove the Polyslider Washer ①, then remove the Middle Gear.
2. Remove the E-Ring, then remove the Main Cam, P5 Cam, Pinch Roller Cam and Joint Gear.



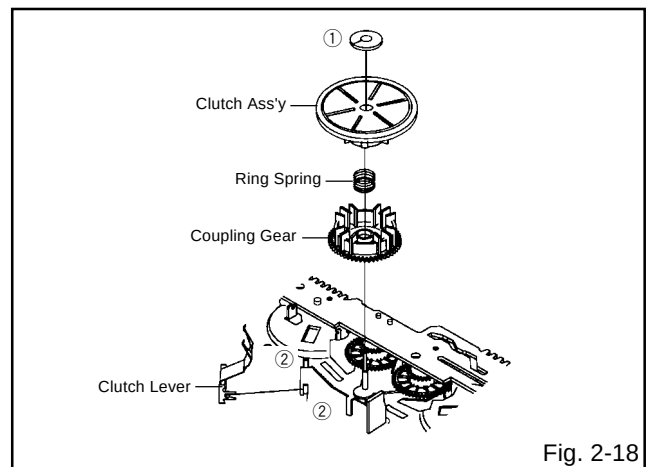
NOTE

When you install the Pinch Roller Cam, P5 Cam and Main Cam, align each marker. (Refer to Fig. 2-17-B)



2-18: CLUTCH ASS'Y (Refer to Fig. 2-18)

1. Remove the Polyslider Washer ①.
2. Remove the Clutch Ass'y, Ring Spring and Coupling Gear.
3. Unlock the 2 supports ② and remove the Clutch Lever.



DISASSEMBLY INSTRUCTIONS

2-19: LOADING GEAR S/T ASS'Y (Refer to Fig. 2-19-A)

1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Remove the Capstan Brake Spring.
3. Slide the Main Rod and remove the Spring Holder.
4. Remove the Main Rod, Tension Lever, Clutch Actuator, Idler Arm Ass'y.
5. Remove the screw ②.
6. Remove the LED Reflector.
7. Remove the Loading Arm S Ass'y and Loading Arm T Ass'y.
8. Remove the Loading Gear S and Loading Gear T.
9. Remove the Loading Gear Spring.

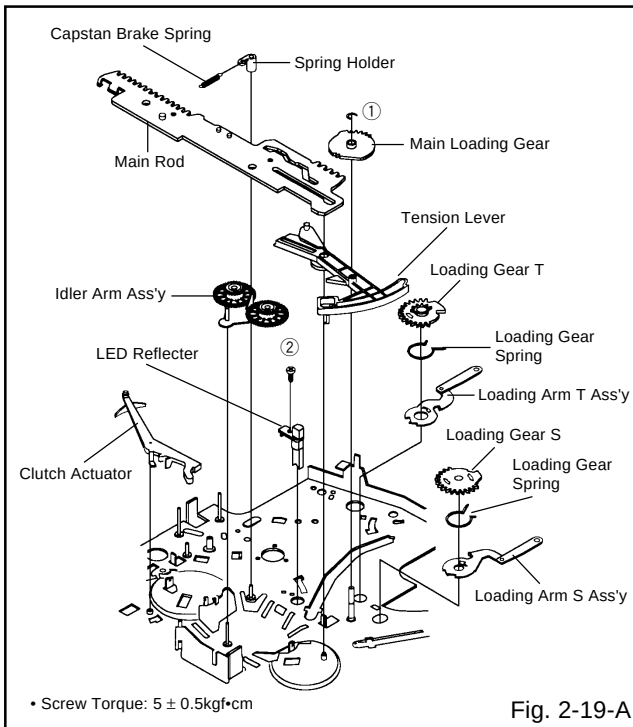


Fig. 2-19-A

NOTES

1. When you install the Loading Arm S Ass'y, Loading Arm T Ass'y and Main Loading Gear, align each marker. (Refer to Fig. 2-19-B)

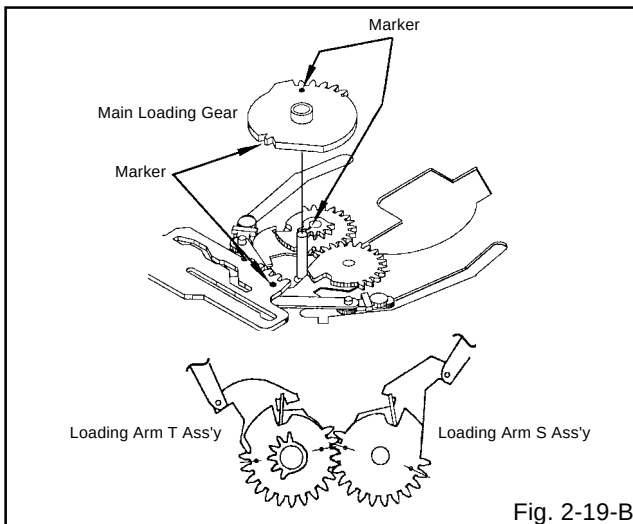


Fig. 2-19-B

2. When you install the Clutch Actuator, install as shown in the circle of Fig. 2-19-C. (Refer to Fig. 2-19-C)

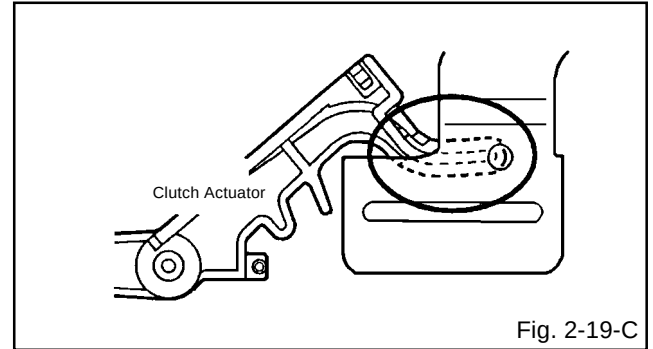


Fig. 2-19-C

2-20: INCLINED S/T ASS'Y (Refer to Fig. 2-20)

1. Remove the Cap P4.
2. Remove the screw ①.
3. Unlock the support ② and remove the Loading Gear Holder.
4. Remove the Inclined S Unit.
5. Remove the Inclined T Unit.

NOTE

Do not touch the roller of Guide Roller.

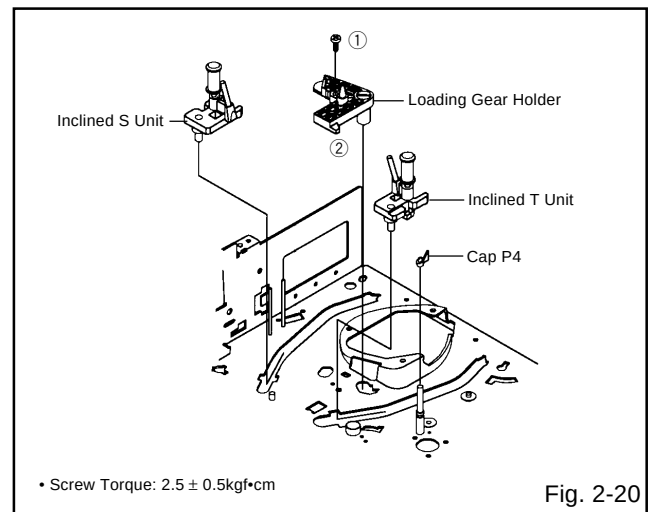


Fig. 2-20

DISASSEMBLY INSTRUCTIONS

3. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

- * After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
- * Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

REMOVAL

1. Follow the steps as follows to discharge the Anode Cap.
(Refer to Fig. 3-1.)

Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground. While holding the plastic part of the insulated Screwdriver, touch the support of the Anode with the tip of the Screwdriver. A cracking noise will be heard as the voltage is discharged.

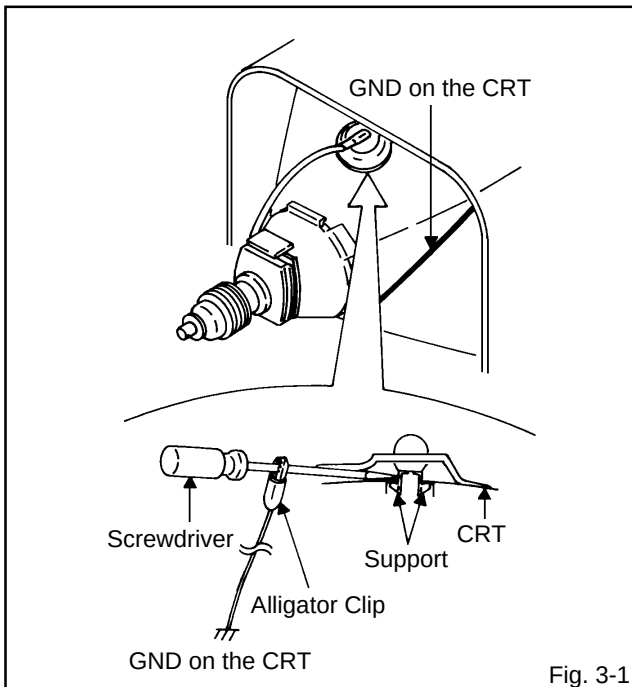


Fig. 3-1

2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support.
(Refer to Fig. 3-2.)

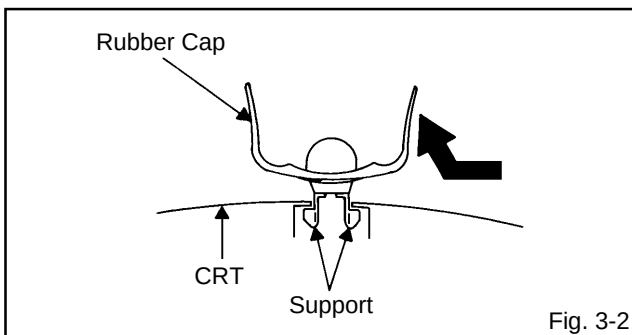


Fig. 3-2

3. After one side is removed, pull in the opposite direction to remove the other.

NOTE

Take care not to damage the Rubber Cap.

INSTALLATION

1. Clean the spot where the cap was located with a small amount of alcohol. **(Refer to Fig. 3-3.)**

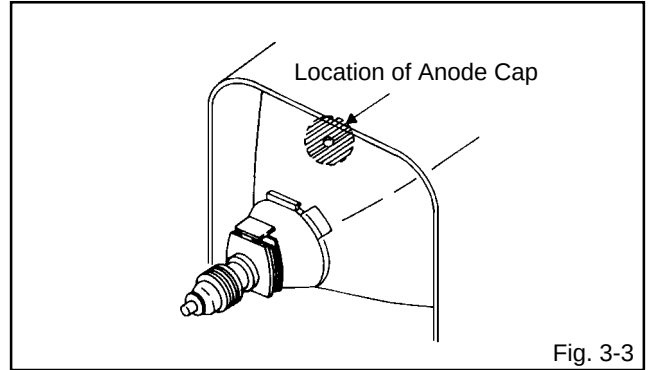


Fig. 3-3

NOTE

Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap. **(Refer to Fig. 3-4.)**

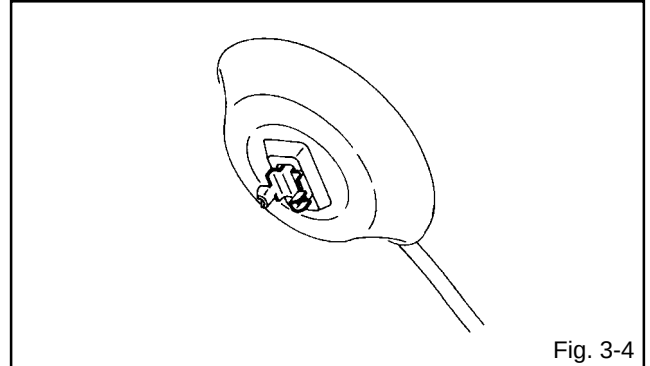


Fig. 3-4

4. Insert one end of the Anode Support into the anode button, then the other as shown in Fig. 3-5.

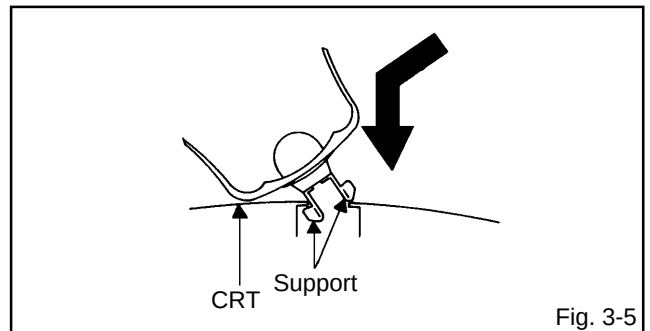


Fig. 3-5

5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

KEY TO ABBREVIATIONS

A	A/C	: Audio/Control	H.SW	: Head Switch	
	ACC	: Automatic Color Control	Hz	: Hertz	
	AE	: Audio Erase	I	IC	: Integrated Circuit
	AFC	: Automatic Frequency Control		IF	: Intermediate Frequency
	AFT	: Automatic Fine Tuning		IND	: Indicator
	AFT DET	: Automatic Fine Tuning Detect		INV	: Inverter
	AGC	: Automatic Gain Control	K	KIL	: Killer
	AMP	: Amplifier	L	L	: Left
	ANT	: Antenna		LED	: Light Emitting Diode
	A.PB	: Audio Playback		LIMIT AMP	: Limiter Amplifier
	APC	: Automatic Phase Control		LM, LDM	: Loading Motor
	ASS'Y	: Assembly		LP	: Long Play
	AT	: All Time		L.P.F	: Low Pass Filter
	AUTO	: Automatic		LUMI.	: Luminance
	A/V	: Audio/Video	M	M	: Motor
B	BGP	: Burst Gate Pulse		MAX	: Maximum
	BOT	: Beginning of Tape		MINI	: Minimum
	BPF	: Bandpass Filter		MIX	: Mixer, mixing
	BRAKE SOL	: Brake Solenoid		MM	: Monostable Multivibrator
	BUFF	: Buffer		MOD	: Modulator, Modulation
	B/W	: Black and White		MPX	: Multiplexer, Multiplex
C	C	: Capacitance, Collector		MS SW	: Mecha State Switch
	CASE	: Cassette	N	NC	: Non Connection
	CAP	: Capstan		NR	: Noise Reduction
	CARR	: Carrier	O	OSC	: Oscillator
	CH	: Channel		OPE	: Operation
	CLK	: Clock	P	PB	: Playback
	CLOCK (SY-SE)	: Clock (Syscon to Servo)		PB CTL	: Playback Control
	COMB	: Combination, Comb Filter		PB-C	: Playback-Chrominance
	CONV	: Converter		PB-Y	: Playback-Luminance
	CPM	: Capstan Motor		PCB	: Printed Circuit Board
	CTL	: Control		P. CON	: Power Control
	CYL	: Cylinder		PD	: Phase Detector
	CYL-M	: Cylinder-Motor		PG	: Pulse Generator
	CYL SENS	: Cylinder-Sensor		P-P	: Peak-to Peak
D	DATA (SY-CE)	: Data (Syscon to Servo)	R	R	: Right
	dB	: Decibel		REC	: Recording
	DC	: Direct Current		REC-C	: Recording-Chrominance
	DD Unit	: Direct Drive Motor Unit		REC-Y	: Recording-Luminance
	DEMOD	: Demodulator		REEL BRK	: Reel Brake
	DET	: Detector		REEL S	: Reel Sensor
	DEV	: Deviation		REF	: Reference
E	E	: Emitter		REG	: Regulated, Regulator
	EF	: Emitter Follower		REW	: Rewind
	EMPH	: Emphasis		REV, RVS	: Reverse
	ENC	: Encoder		RF	: Radio Frequency
	ENV	: Envelope		RMC	: Remote Control
	EOT	: End of Tape		RY	: Relay
	EQ	: Equalizer	S	S. CLK	: Serial Clock
	EXT	: External		S. COM	: Sensor Common
F	F	: Fuse		S. DATA	: Serial Data
	FBC	: Feed Back Clamp		SEG	: Segment
	FE	: Full Erase		SEL	: Select, Selector
	FF	: Fast Forward, Flipflop		SENS	: Sensor
	FG	: Frequency Generator		SER	: Search Mode
	FL SW	: Front Loading Switch		SI	: Serial Input
	FM	: Frequency Modulation		SIF	: Sound Intermediate Frequency
	FSC	: Frequency Sub Carrier		SO	: Serial Output
	FWD	: Forward		SOL	: Solenoid
G	GEN	: Generator		SP	: Standard Play
	GND	: Ground		STB	: Serial Strobe
H	H.P.F	: High Pass Filter		SW	: Switch

KEY TO ABBREVIATIONS

S	SYNC	:	Synchronization
	SYNC SEP	:	Sync Separator, Separation
T	TR	:	Transistor
	TRAC	:	Tracking
	TRICK PB	:	Trick Playback
	TP	:	Test Point
U	UNREG	:	Unregulated
V	V	:	Volt
	VCO	:	Voltage Controlled Oscillator
	VIF	:	Video Intermediate Frequency
	VP	:	Vertical Pulse, Voltage Display
	V.PB	:	Video Playback
	VR	:	Variable Resistor
	V.REC	:	Video Recording
	VSF	:	Visual Search Fast Forward
	VSR	:	Visual Search Rewind
	VSS	:	Voltage Super Source
	V-SYNC	:	Vertical-Synchronization
	VT	:	Voltage Tuning
X	X'TAL	:	Crystal
Y	Y/C	:	Luminance/Chrominance

SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.

To enter SERVICE MODE, unplug AC cord till lost actual clock time. Then press and hold Vol (-) button of main unit and remocon key simultaneously.

The both pressing of set key and remote control key will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On.

Set Key	Remocon Key	Operations
VOL. (-) MIN	0	Releasing of V-CHIP PASSWORD.
VOL. (-) MIN	1	Initialization of the factory. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	2	Horizontal position adjustment of OSD. NOTE: Also can be adjusted by using the Adjustment MENU. Refer to the "ELECTRICAL ADJUSTMENT" (OSD HORIZONTAL).
VOL. (-) MIN	3	Adjust the PG SHIFTER automatically. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	4	Adjust the PG SHIFTER manually. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	5	Adjusting of the Tracking to the center position. NOTE: Also can be adjusted by pressing the ATR button for more than 2 seconds during PLAY.
VOL. (-) MIN	6	POWER ON total hours and PLAY/REC total hours are displayed on the screen. Refer to the "PREVENTIVE CHECKS AND SERVICE INTERVALS" (CONFIRMATION OF USING HOURS). Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "NOTE FOR THE REPLACING OF MEMORY IC".
VOL. (-) MIN	8	Writing of EEPROM initial data. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	9	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).

Method	Operations
Press the ATR button on the remote control for more than 2 seconds during PLAY.	Adjusting of the Tracking to the center position. Refer to the "MECHANICAL ADJUSTMENT" (GUIDE ROLLER) and "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
Make the short circuit between the test point of SERVICE and the GND.	The EOT/BOT/Reel sensor do not work at this moment. Refer to the "PREPARATION FOR SERVICING"

PREVENTIVE CHECKS AND SERVICE INTERVALS

The following standard table depends on environmental conditions and usage. Unless maintenance is properly carried out, the following service intervals may be quite shortened as harmful effects may be had on other parts. Also, long term storage or misuse may cause transformation and aging of rubber parts.

Time Parts Name	500 hours	1,000 hours	1,500 hours	2,000 hours	3,000 hours	Notes
Audio Control Head	■	■	■	■	■	Clean those parts in contact with the tape.
Full Erase Head (Recorder only)	■	■	■	■	■	
Capstan Belt			■	■	●	Clean the rubber, and parts which the rubber touches.
Pinch Roller	■	■	■	■	■ ●	
Capstan DD Unit					●	
Loading Motor					●	
Tension Band					●	
Capstan Shaft	■	■	■	■	■	
Tape Running Guide Post	■	■	■	■	■	Replace when rolling becomes abnormal.
Cylinder Unit	■	■	■	■	●	Clean the Head

■ : Clean
● : Replace

CONFIRMATION OF USING HOURS

POWER ON total hours and PLAY/REC total hours can be checked on the screen.
Total hours are displayed in 16 system of notation.

NOTE: The confirmation of using hours will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On.

1. Set the VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control simultaneously.
3. After the confirmation of using hours, turn off the power.

INIT 00 83	Initial setting content of MEMORY IC.
POWER ON 0010	POWER ON total hours.
PLAY/REC 0003	PLAY/REC total hours.

(16 x 16 x 16 x thousands digit value) + (16 x 16 x hundreds digit value) + (16 x tens digit value) + (ones digit value)

PREVENTIVE CHECKS AND SERVICE INTERVALS

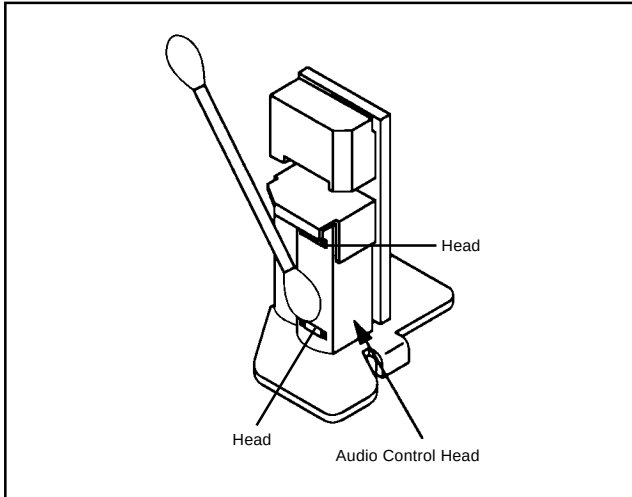
CLEANING

NOTE

After cleaning the heads with isopropyl alcohol, do not run a tape until the heads dry completely. If the heads are not completely dry and alcohol gets on the tape, damage may occur.

1. AUDIO CONTROL HEAD

Clean the Audio Control Head with the cotton stick soaked by alcohol. Clean the full erase head in the same manner. **(Refer to the figure below.)**



2. TAPE RUNNING SYSTEM

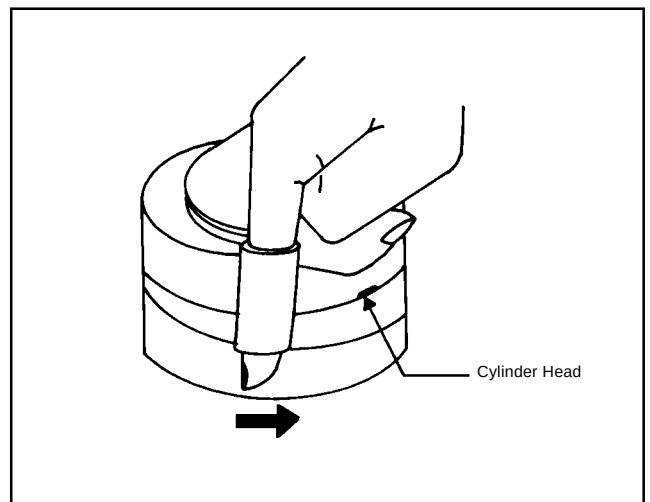
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol. Hold it to the cylinder head softly. Turn the cylinder head counterclockwise to clean it (in the direction of the arrow). **(Refer to the figure below.)**

NOTE

Do not exert force against the cylinder head. Do not move the chamois upward or downward on the head. Use the chamois one by one.



NOTE FOR THE REPLACING OF MEMORY IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

NOTE: Initial Data setting will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On.

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	88	1B	E2	63	43	14	34	09	51	38	10	96	19	00	00	29
10	B2	9A	92	93	00	00	30	05	08	00	A9	0F	04	3E	06	04
20	06	29	01	15	10	60	32	3A	BA	D7	10	15	20	25	26	27
30	28	29	2A	2C	2E	30	32	34	36	38	3A	3C	3E	40	41	42
40	43	44	45	46	47	48	49	4A	4B	4C	4D	4E	4F	50	51	52
50	53	54	55	56	57	58	59	5A	5B	5C	5D	5E	5F	60	61	62
60	63	64	66	69	6D	74	79	7C	7E	7F	---	---	---	---	---	---

Table 1

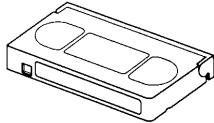
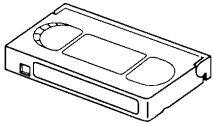
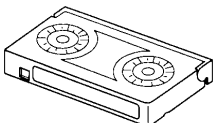
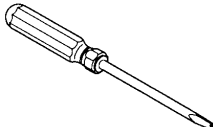
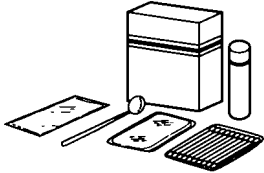
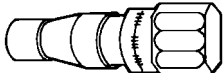
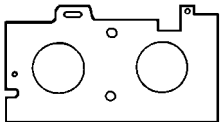
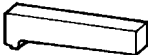
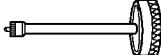
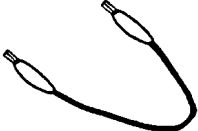
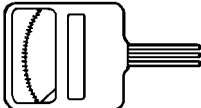
1. Enter DATA SET mode by setting VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control simultaneously. ADDRESS and DATA should appear as FIG 1.

	ADDRESS	DATA
INIT	00	83
POWER ON	0010	
PLAY/REC	0003	

Fig. 1

3. ADDRESS is now selected and should "blink". Using the SET + or - keys on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using SET + or - until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input. The unit will now have the correct DATA for the new MEMORY IC.

SERVICING FIXTURES AND TOOLS

Alignment Tape  ST-N5 ST-NF	Back tension cassette gauge  70909103	Torque cassette gauge (KT-300NR)  70909199	Taper nut driver  70909228
VTR cleaning kit 	VTR lubrication kit 	Grease 	JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm) 
JG022 Master Plane 	JG024A Reel Disk Height Adjustment Jig 	JG153 X Value Adjustment Screwdriver 	JG154 Cable 
Tentelometer 			

Ref. No.	Part No.	Parts Name	Remarks
JG002B	APJG002B00	Adapter	VSR Torque, Brake Torque (S Reel/T Reel Ass'y)
JG002E	APJG002E00	Dial Torque Gauge (10~90gf•cm)	Brake Torque (T Reel Ass'y)
JG002F	APJG002F00	Dial Torque Gauge (60~600gf•cm)	VSR Torque, Brake Torque (S Reel)
JG022	APJG022000	Master Plane	Reel Disk Height Adjustment
JG024A	APJG024A00	Reel Disk Height Adjustment Jig	Reel Disk Height Adjustment
JG153	APJG153000	X Value Adjustment Screwdriver	X Value Adjustment
JG154	APJG154000	Cable	Used to connect the test point of SERVICE and GROUND

PREPARATION FOR SERVICING

How to use the Servicing Fixture

1. Unplug the connector CP353 and CP354, then remove the TV/VCR Block from the set.
2. Remove the Operation PCB from the set, then connect it with the Syscon PCB.
If necessary, connect CP353. (Front A/V Jack Input Terminal)
3. Short circuit between **TP1001** and **Ground** with the cable JG154.
(Refer to **MAJOR COMPONENTS LOCATION GUIDE**)
4. The EOT, BOT and Reel Sensor do not work at this moment.
At that time, the STOP/EJECT button is available to insert and eject the Cassette Tape.

MECHANICAL ADJUSTMENTS

1. CONFIRMATION AND ADJUSTMENT

Read the following NOTES before starting work.

- Place an object which weighs between 450g~500g on the Cassette Tape to keep it steady when you want to make the tape run without the Cassette Holder. (Do not place an object which weighs over 500g.)
- When you activate the deck without the Cassette Holder, short circuit between **TP1001** and **GND**. (Refer to **ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE**) In this condition the BOT/EOT/Reel Sensor will not function.

1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

- Turn on the power and set to the STOP mode.
- Set the master plane (**JG022**) and reel disk height adjustment jig (**JG024A**) on the mechanism framework, taking care not to scratch the drum, as shown in **Fig. 1-1-A**.
- While turning the reel and confirm the following points. Check if the surface "A" of reel disk is lower than the surface "B" of reel disk height adjustment jig (**JG024A**) and is higher than the surface "C". If it is not passed, place the height adjustment washers and adjust to 10(+2, -0)mm.
- Adjust the other reel in the same way.

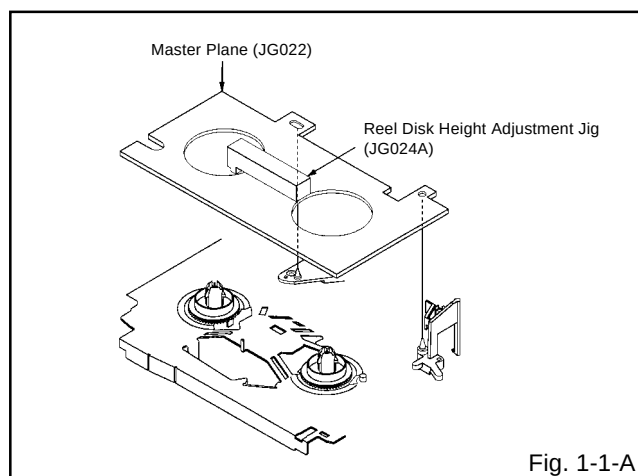


Fig. 1-1-A

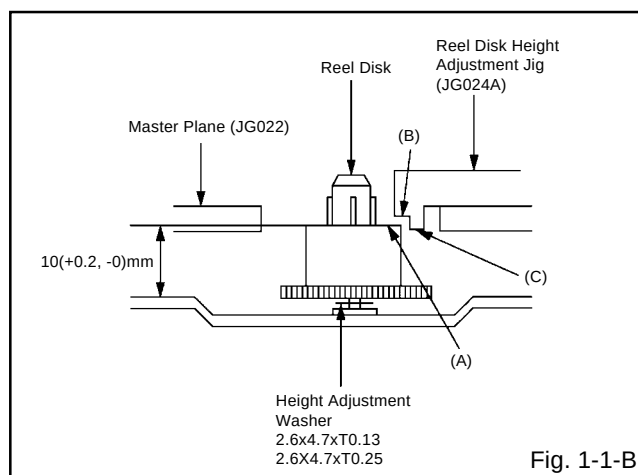


Fig. 1-1-B

1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

- Set to the PLAY mode.
- Adjust the Tension Adjust until the edge of the Tension Arm is positioning within 0.5mm range from the standard line center of Main Chassis. After this adjustment, confirm that the cut position is located in "A" area as shown in **Fig. 1-2-B**. If it is located in "B" area, adjust again.
- While turning the S Reel clockwise, confirm that the edge of the Tension Arm is located in the position described above.

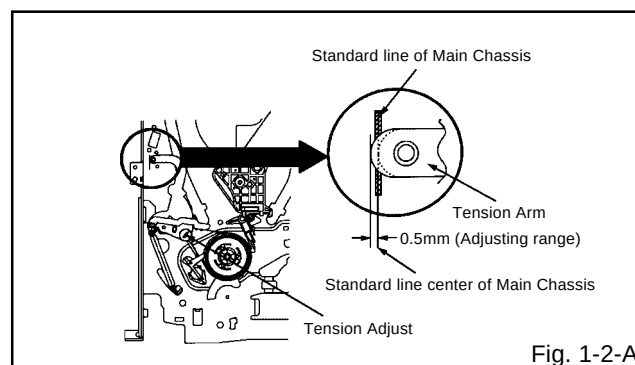


Fig. 1-2-A

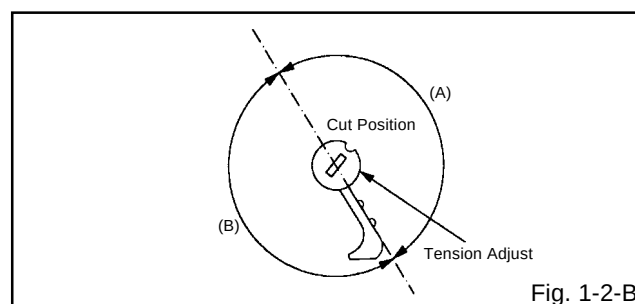


Fig. 1-2-B

1-3: CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK

- Load a video tape (T-120) recorded in standard speed mode. Set the unit to the PLAY mode.
- Install the tentelometer as shown in **Fig. 1-3**. Confirm that the meter indicates $20 \pm 2\text{gf}$ in the beginning of playback.

• USING A CASSETTE TYPE TORQUE TAPE (**KT-300NR**)

- After confirmation and adjustment of Tension Post position (Refer to item 1-2), load the cassette type torque tape (**KT-300NR**) and set to the PLAY mode.
- Confirm that the right meter of the torque tape indicates 60~110gf•cm during playback in SP mode.
- Confirm that the left meter of the torque tape indicates 25~40gf•cm during playback in SP mode.

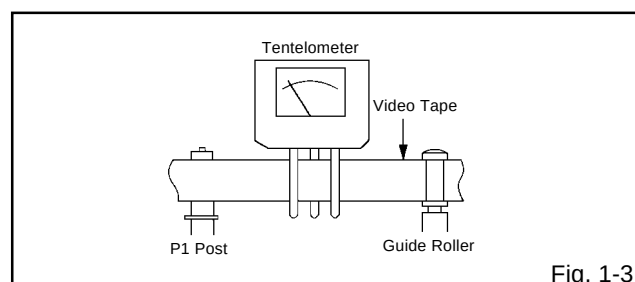


Fig. 1-3

MECHANICAL ADJUSTMENTS

1-4: CONFIRMATION OF VSR TORQUE

1. Install the Torque Gauge (**JG002F**) and Adapter (**JG002B**) on the S Reel. Set to the Picture Search (Rewind) mode. (Refer to Fig.1-4)
2. Then, confirm that it indicates 120~180gf•cm.

NOTE

Install the Torque Gauge on the reel disk firmly. Press the REW button to turn the reel disk.

1-5: CONFIRMATION OF REEL BRAKE TORQUE

(S Reel Brake) (Refer to Fig. 1-4-B)

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of Fig. 1-4-A.
2. Move the Idler Ass'y from the S Reel.
3. Install the Torque Gauge (**JG002F**) and Adapter (**JG002B**) on the S Reel. Turn the Torque Gauge (**JG002F**) clockwise.
4. Then, confirm that it indicates 60~100gf•cm.

(T Reel Brake) (Refer to Fig. 1-4-B)

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of Fig. 1-4-A.
2. Move the Idler Ass'y from the T Reel.
3. Install the Torque Gauge (**JG002E**) and Adapter (**JG002B**) on the T reel. Turn the Torque Gauge (**JG002E**) counterclockwise.
4. Then, confirm that it indicates 45~70gf•cm.

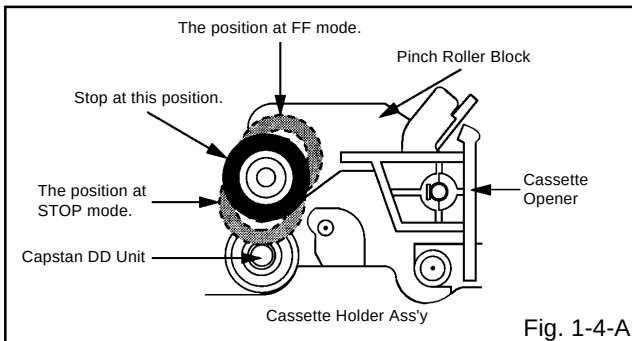


Fig. 1-4-A

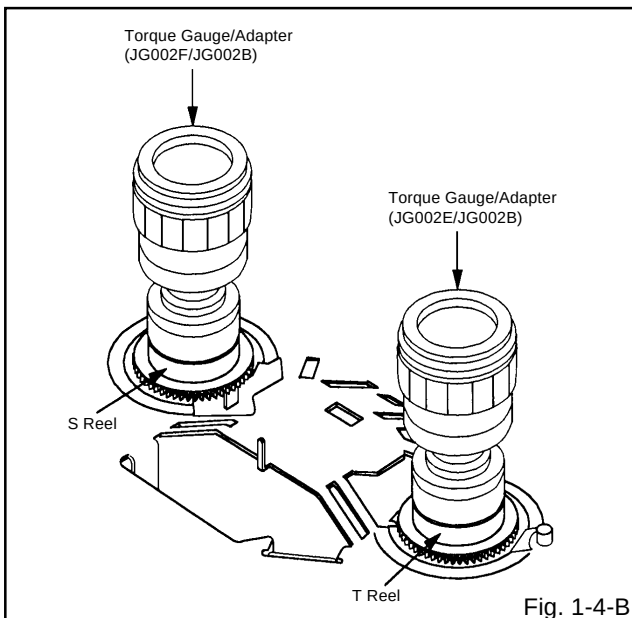


Fig. 1-4-B

NOTE

If the torque is out of the range, replace the following parts.

Check item	Replacement Part
1-4	Idler Ass'y/Clutch Ass'y
1-5	S Reel side: S Reel/Tension Band Ass'y/ Tension Arm Ass'y T Reel side: T Reel/T Brake Spring/T Brake Ass'y

2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

Tape Running Mechanism is adjusted precisely at the factory. Adjustment is not necessary as usual. When you replace the parts of the tape running mechanism because of long term usage or failure, the confirmation and adjustment are necessary.

2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape.
2. Connect CH-1 of the oscilloscope to **TP4001 (Envelope)** and CH-2 to **TP1002 (SW Pulse)**.
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Trigger with SW Pulse and observe the envelope. (Refer to Fig. 2-1-A)
5. When observing the envelope, adjust the Taper Nut Driver slightly until the envelope will be flat. Even if you press the Tracking Button, adjust so that flatness is not moved so much.
6. Adjust so that the A : B ratio is better than 3 : 2 as shown in Fig. 2-1-B, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
7. Adjust the PG shifter during playback. (Refer to the ELECTRICAL ADJUSTMENTS)

NOTE

After adjustment, confirm and adjust A/C head. (Refer to item 2-2)

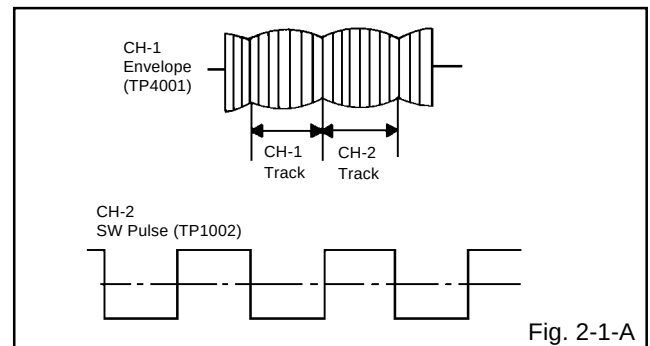


Fig. 2-1-A

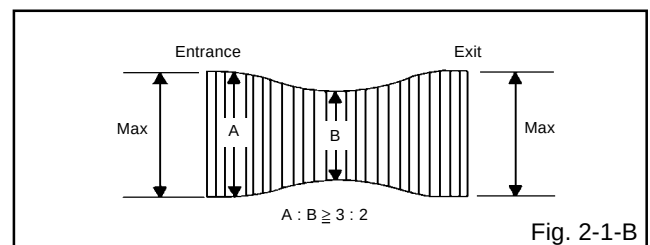


Fig. 2-1-B

MECHANICAL ADJUSTMENTS

2-2: CONFIRMATION AND ADJUSTMENT OF AUDIO/CONTROL HEAD

When the Tape Running Mechanism does not work well, adjust the following items.

1. Playback the VHS Alignment Tape.
2. Confirm that the reflected picture of stamp mark is appeared on the tape prior to P4 Post as shown in **Fig. 2-2-A**.
 - a) When the reflected picture is distorted, turn the screw ① clockwise until the distortion is disappeared.
 - b) When the reflected picture is not distorted, turn the screw ① counterclockwise until little distortion is appeared, then adjust the a).
3. Turn the screw ② to set the audio level to maximum.
4. Confirm that the bottom of the Audio/ Control Head and the bottom of the tape is shown in **Fig. 2-2-C**.
 - c) When the height is not correct, turn the screw ③ to adjust the height. Then, adjust the 1~3 again.

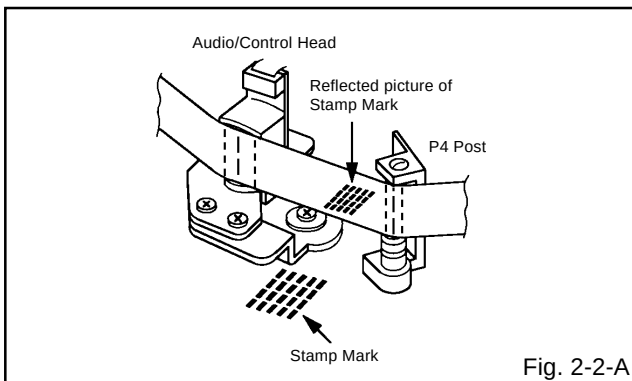


Fig. 2-2-A

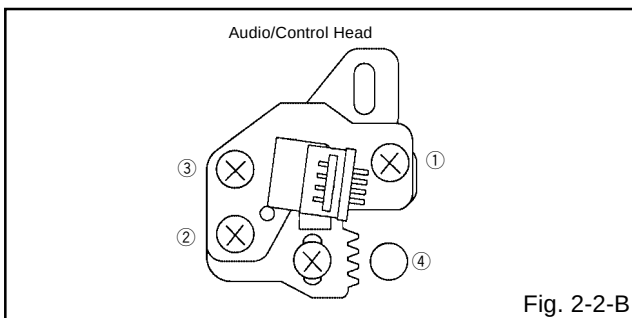


Fig. 2-2-B

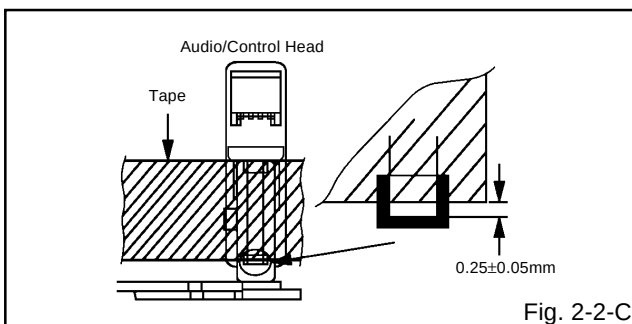


Fig. 2-2-C

2-3: TAPE RUNNING ADJUSTMENT (X VALUE ADJUSTMENT)

1. Confirm and adjust the height of the Reel Disk. **(Refer to item 1-1)**
2. Confirm and adjust the position of the Tension Post. **(Refer to item 1-2)**
3. Adjust the Guide Roller. **(Refer to item 2-1)**
4. Confirm and adjust the Audio/Control Head. **(Refer to item 2-2)**
5. Connect CH-1 of the oscilloscope to **TP4001**, CH-2 to **TP1002** and CH-3 to **HOT side of Audio Out Jack**.
6. Playback the VHS Alignment Tape.
7. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
8. Set the X Value adjustment driver (**JG153**) to the ④ of **Fig. 2-2-B**. Adjust X value so that the envelope waveform output becomes maximum. Check if the relation between Audio and Envelope waveform becomes (1) or (2) of **Fig. 2-3**.

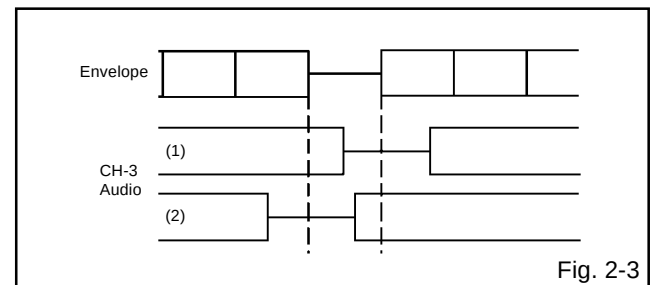
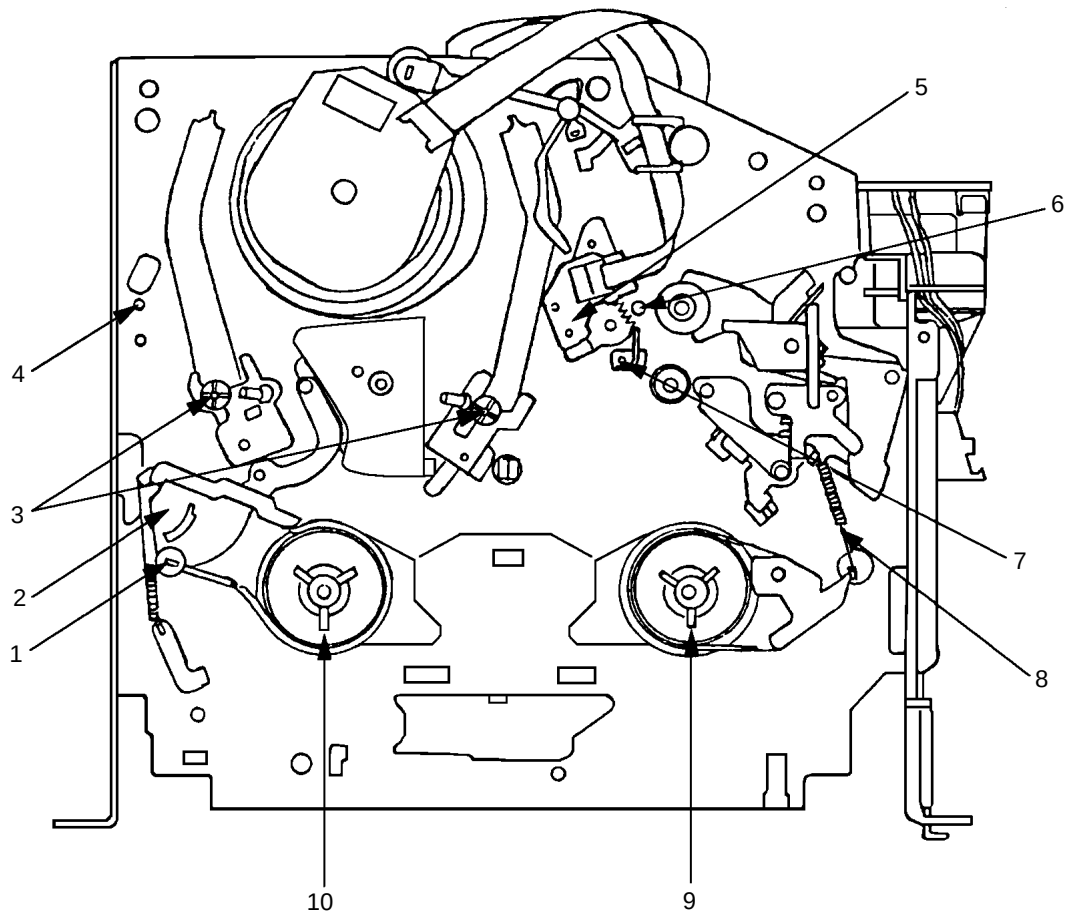


Fig. 2-3

MECHANICAL ADJUSTMENTS

3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



- 1. Tension Adjust
- 2. Tension Arm
- 3. Guide Roller
- 4. P1 Post
- 5. Audio/Control Head

- 6. X value adjustment driver hole
- 7. P4 Post
- 8. T Brake Spring
- 9. T Reel
- 10. S Reel

ELECTRICAL ADJUSTMENTS

1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

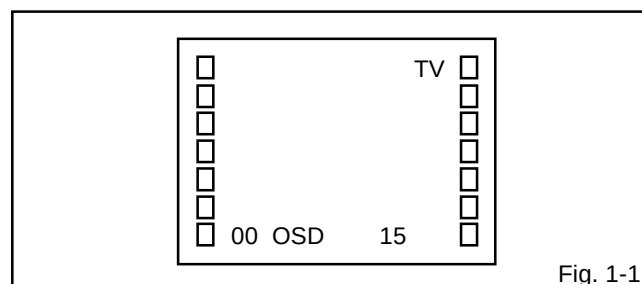
Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

CAUTION

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
Inferior silicon grease can damage IC's and transistors.
- When replacing IC's and transistors, use only specified silicon grease.
Remove all old silicon before applying new silicon.

On-Screen Display Adjustment

1. Unplug the AC plug for more than 5 seconds to set the clock to the non-setting state. Then, set the volume level to minimum.
2. Press the VOL. DOWN button on the set and the Channel button **(9)** on the remote control simultaneously to appear the adjustment mode on the screen as shown in **Fig. 1-1**.



3. Use the Channel UP/DOWN button or Channel button **(0-9)** on the remote control to select the options shown in **Fig. 1-2**.
4. Press the MENU button on the remote control to end the adjustments.

NO.	FUNCTION	NO.	FUNCTION
00	OSD H	13	BRIGHTNESS
01	CUT OFF	14	CONTRAST
02	RF DELAY	15	COLOR
03	VIF VCO	16	TINT
04	H VCO	17	SHARPNESS
05	H PHASE	18	FM LEVEL
06	V SIZE	19	LEVEL
07	V SHIFT	20	SEPARATION 1
08	R DRIVE	21	SEPARATION 2
09	B DRIVE	22	TEST MONO
10	R BIAS	23	TEST STEREO
11	G BIAS	24	X-RAY TEST
12	B BIAS		

Fig. 1-2

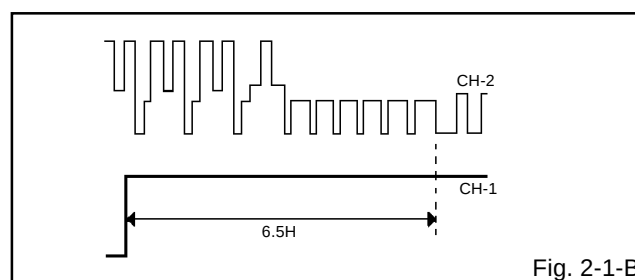
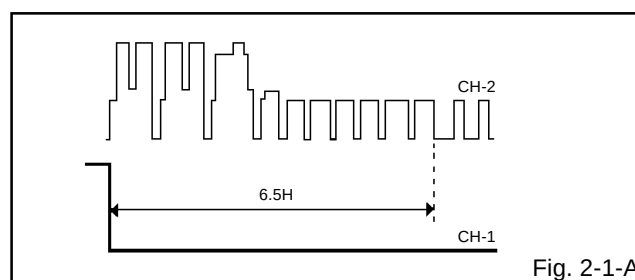
2. BASIC ADJUSTMENTS (VCR SECTION)

2-1: PG SHIFTER

1. Connect CH-1 on the oscilloscope to **TP1002** and CH-2 to **pin 4 of CP1003**.
2. Playback the alignment tape.
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control simultaneously until the indicator REC disappears. If the indicator REC disappears, adjustment is completed.

(If the above adjustments doesn't work well:)

5. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control simultaneously until the indicator REC disappears.
6. When the REC indicator is blinking, press both VOL. DOWN button on the set and the channel button **(4)** on the remote control simultaneously and adjust the Tracking +/- button until the arising to the down of Head Switching Pulse becomes $6.5 \pm 0.5H$.
(Refer to Fig. 2-1-A, B)
7. Press the Tracking Auto button.



2-2: VCO FREERUN

1. Place the set with Aging Test for more than 10 minutes.
2. Receive the VHF HIGH.
3. Disconnect the Antenna while receiving the VHF HIGH and set to the Noise screen.
4. Once turn off the Power and turn on the Power again.
5. Approx. 3 seconds later, input the Antenna again.
6. Connect the digital voltmeter between the **pin 5 of CP351** and the **pin 1 (GND) of CP351**.
7. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(03)** on the remote control to select "VIF VCO".
8. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.5VDC.
9. After the 2.5V adjustment, countdown the VIF VCO step No. by 1 step with the VOL. DOWN button.

ELECTRICAL ADJUSTMENTS

2-3: RF AGC

1. Receive the VHF HIGH (63dB).
2. Connect the digital voltmeter between the **pin 5 of CP351** and the **pin 1 (GND) of CP351**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(02)** on the remote control to select "RF DELAY".
4. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.9V.

(TV SECTION)

2-4: CONSTANT VOLTAGE

1. Connect the digital voltmeter to the **R520**.
2. Set condition is AV MODE without signal.
3. Using the remote control, set the brightness and contrast to normal position.
4. Adjust the **VR502** until the digital voltmeter is $135 \pm 0.5V$.

2-5: CUT OFF

1. Adjust the unit to the following settings.
R BIAS=128, G BIAS=128, B BIAS=128,
BRIGHTNESS=128, CONTRAST=100
2. Place the set with Aging Test for more than 15 minutes.
3. Set condition is AV MODE without signal.
4. Using the remote control, set the brightness and contrast to normal position.
5. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(01)** on the remote control to select "CUT OFF".
6. Adjust the **Screen Volume** until a dim raster is obtained.

2-6: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustment.

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the color bar pattern.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(10)** on the remote control to select "R.BIAS".
5. Using the VOL. UP/DOWN button on the remote control, adjust the R.BIAS.
6. Press the CH. UP/DOWN button on the remote control to select the "R.DRIVE", "B.DRIVE", "G.BIAS" or "B.BIAS".
7. Using the VOL. UP/DOWN button on the remote control, adjust the R.DRIVE, B.DRIVE, G.BIAS or B.BIAS.
8. Perform the above adjustments 6 and 7 until the white color is looked like a white.

2-7: FOCUS

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Turn the Focus Volume fully counterclockwise once.
4. Adjust the **Focus Volume** until picture is distinct.

2-8: HORIZONTAL PHASE

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(05)** on the remote control to select "H PHASE".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.

2-9: VERTICAL SHIFT

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(07)** on the remote control to select "V SHIFT".
4. Press the VOL. UP/DOWN button on the remote control until the horizontal line becomes fit to the notch of the shadow mask.

2-10: VERTICAL SIZE

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(06)** on the remote control to select "V SIZE".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

2-11: SUB BRIGHTNESS

1. Receive the monoscope pattern. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(13)** on the remote control to select "BRIGHTNESS".
4. Press the VOL. UP/DOWN button on the remote control until the white 10% is starting to be visible
5. Receive the monoscope pattern. (Audio Video Input)
6. Press the INPUT SELECT button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.

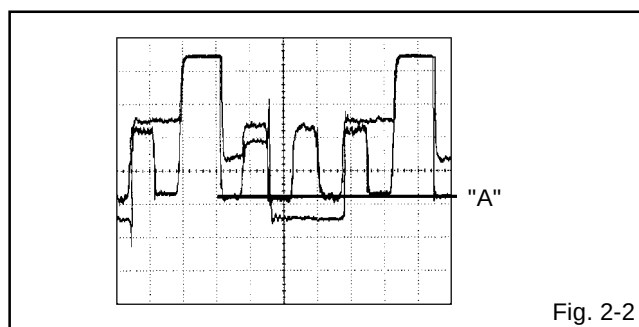
2-12: SUB CONTRAST

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(14)** on the remote control to select "CONTRAST".
2. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "79"
3. Press the INPUT SELECT button on the remote control to set to the AV mode.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(14)** on the remote control.
5. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "85"

ELECTRICAL ADJUSTMENTS

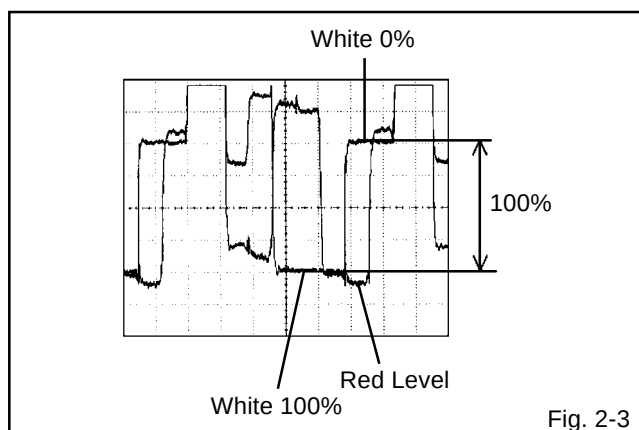
2-13: SUB TINT

1. Receive the color bar pattern. (RF Input)
2. Connect the oscilloscope to **TP801**.
3. Using the remote control, set the brightness, contrast, color and tint to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**16**) on the remote control to select "TINT".
5. Press the VOL. UP/DOWN button on the remote control until the section "A" becomes a straight line. (**Refer to Fig. 2-2**)
6. Receive the color bar pattern. (Audio Video Input)
7. Press the INPUT SELECT button on the remote control to set to the AV mode. Then perform the above adjustments 2~5.



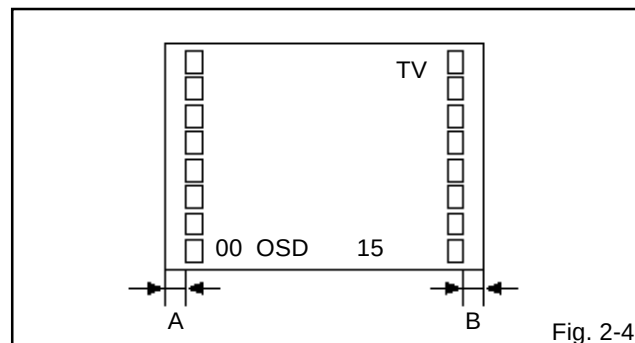
2-14: SUB COLOR

1. Receive the color bar pattern. (RF Input)
2. Connect the oscilloscope to **TP803**.
3. Using the remote control, set the brightness, contrast, color and tint to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**15**) on the remote control to select "COLOR".
5. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope.
6. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to $110 \pm 5\%$ of the white level. (**Refer to Fig. 2-3**)
7. Receive the color bar pattern. (Audio Video Input)
8. Press the INPUT SELECT button on the remote control to set to the AV mode. Then perform the above adjustments 2~6.



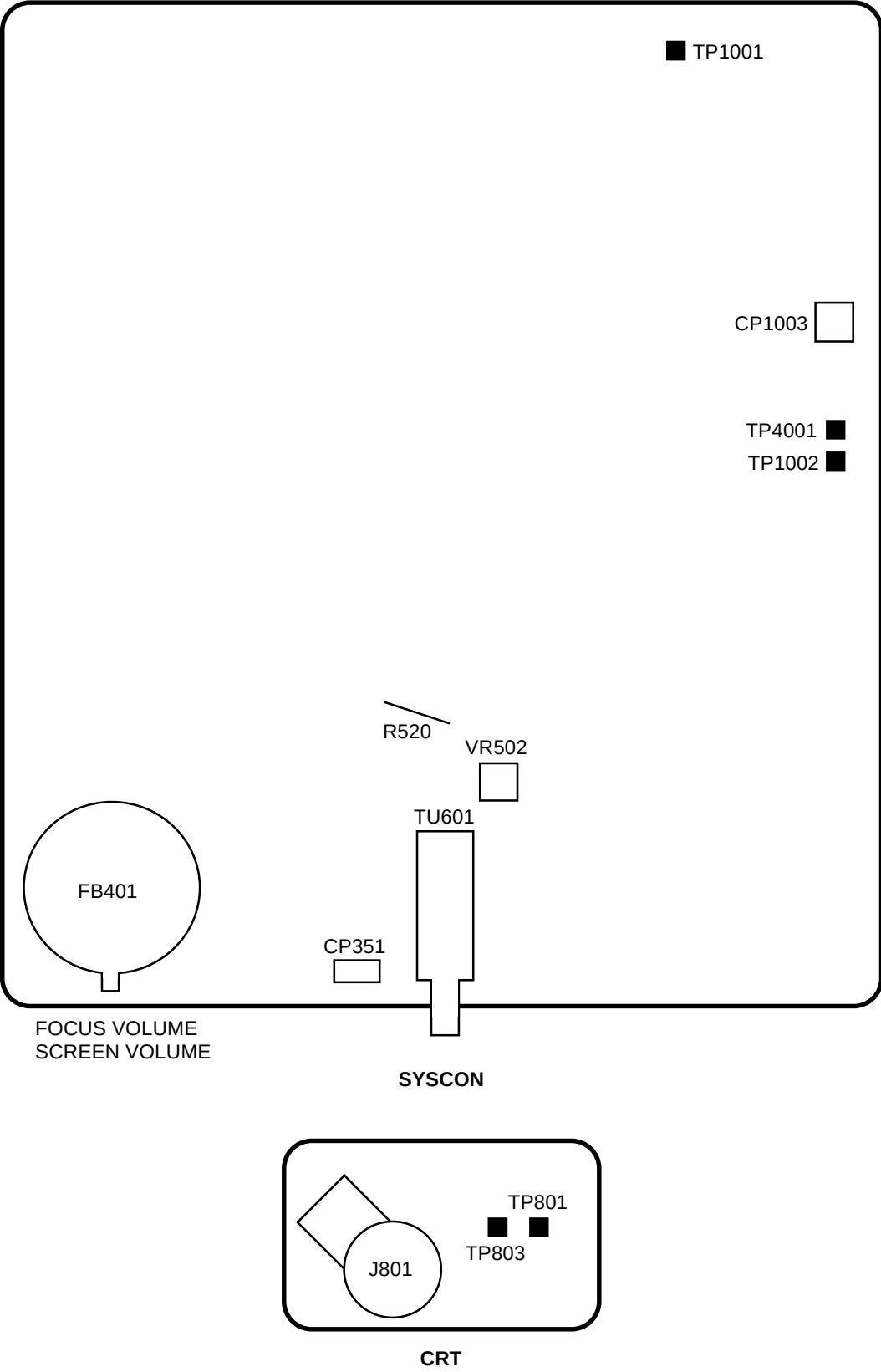
2-15: OSD HORIZONTAL

1. Activate the adjustment mode display of **Fig. 1-1**.
2. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum. (**Refer to Fig. 2-4**)



ELECTRICAL ADJUSTMENTS

3. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE



ELECTRICAL ADJUSTMENTS

4. PURITY AND CONVERGENCE ADJUSTMENTS

NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

4-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 4-1)**
If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

4-2: PURITY

NOTE

Adjust after performing adjustments in section 4-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue colors.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

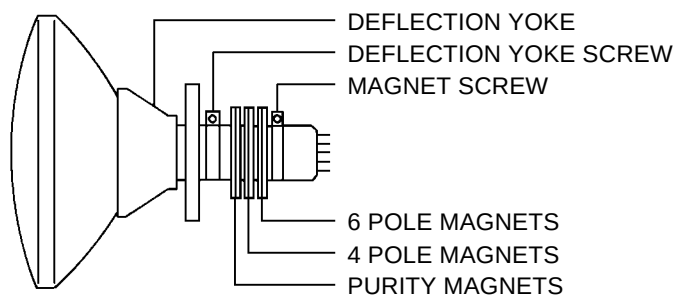


Fig. 4-1

4-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 4-2.

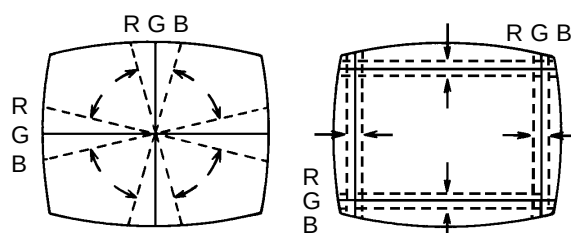
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

4-4: DYNAMIC CONVERGENCE

NOTE

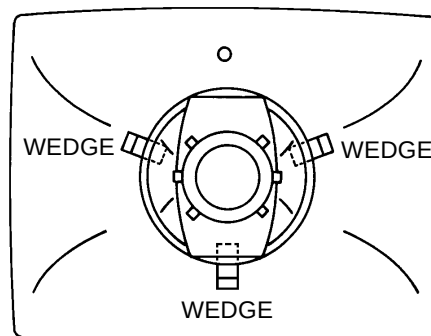
Adjust after performing adjustments in section 4-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left.
(Refer to Fig. 4-2-a)
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke.
(Refer to Fig. 4-2-b)



UPWARD/DOWNWARD SLANT RIGHT/LEFT SLANT

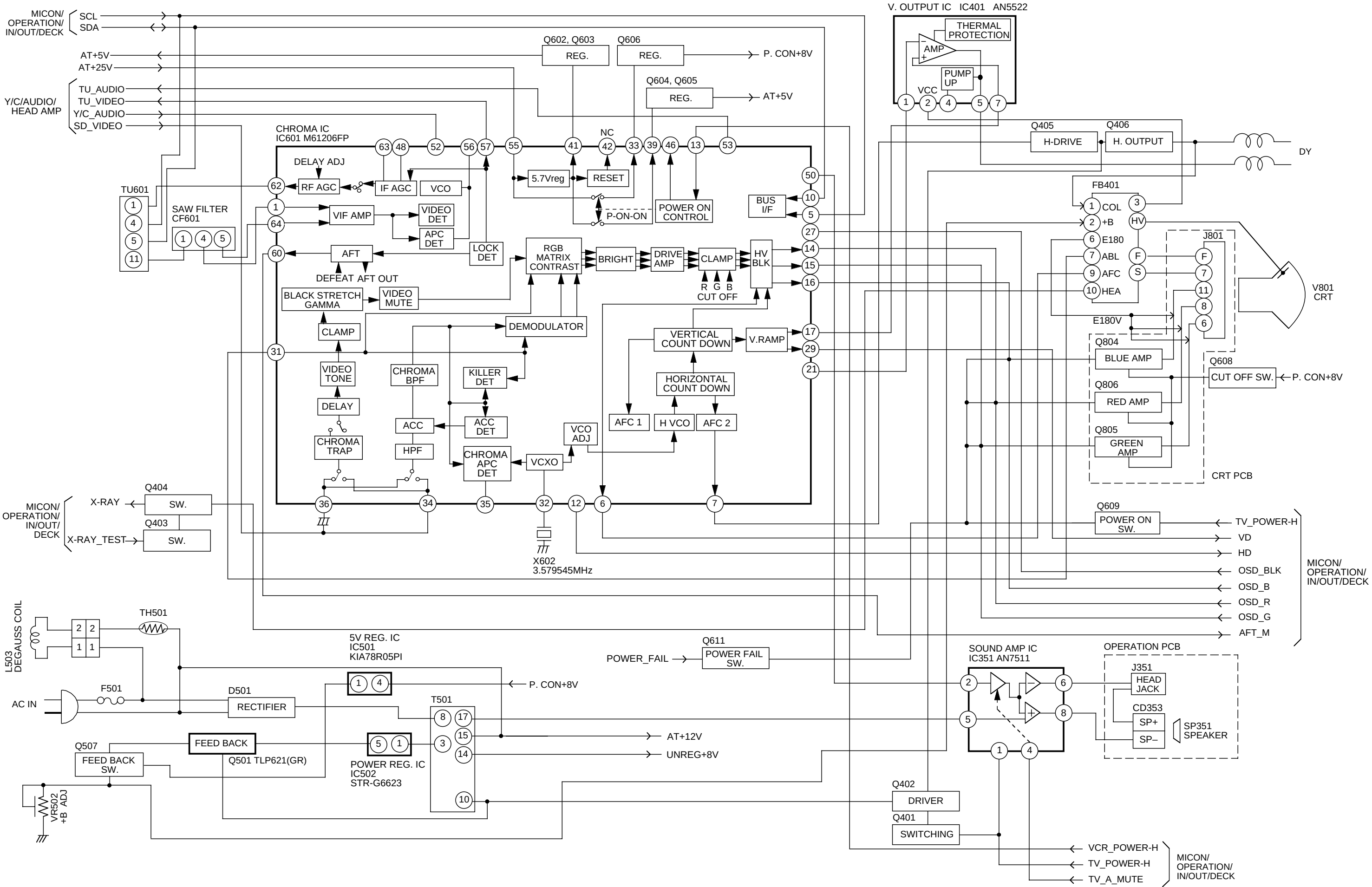
Fig. 4-2-a



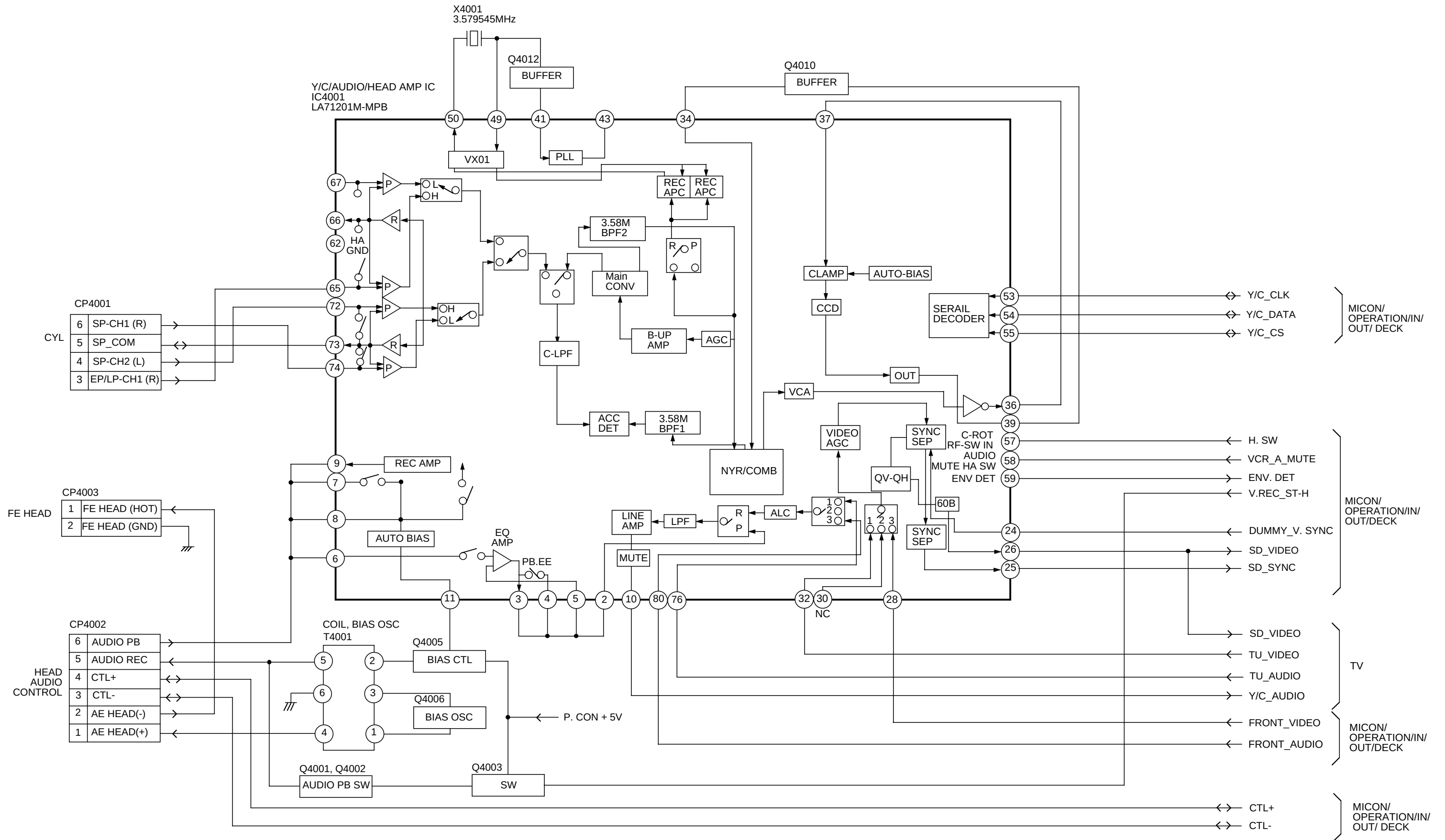
WEDGE POSITION

Fig. 4-2-b

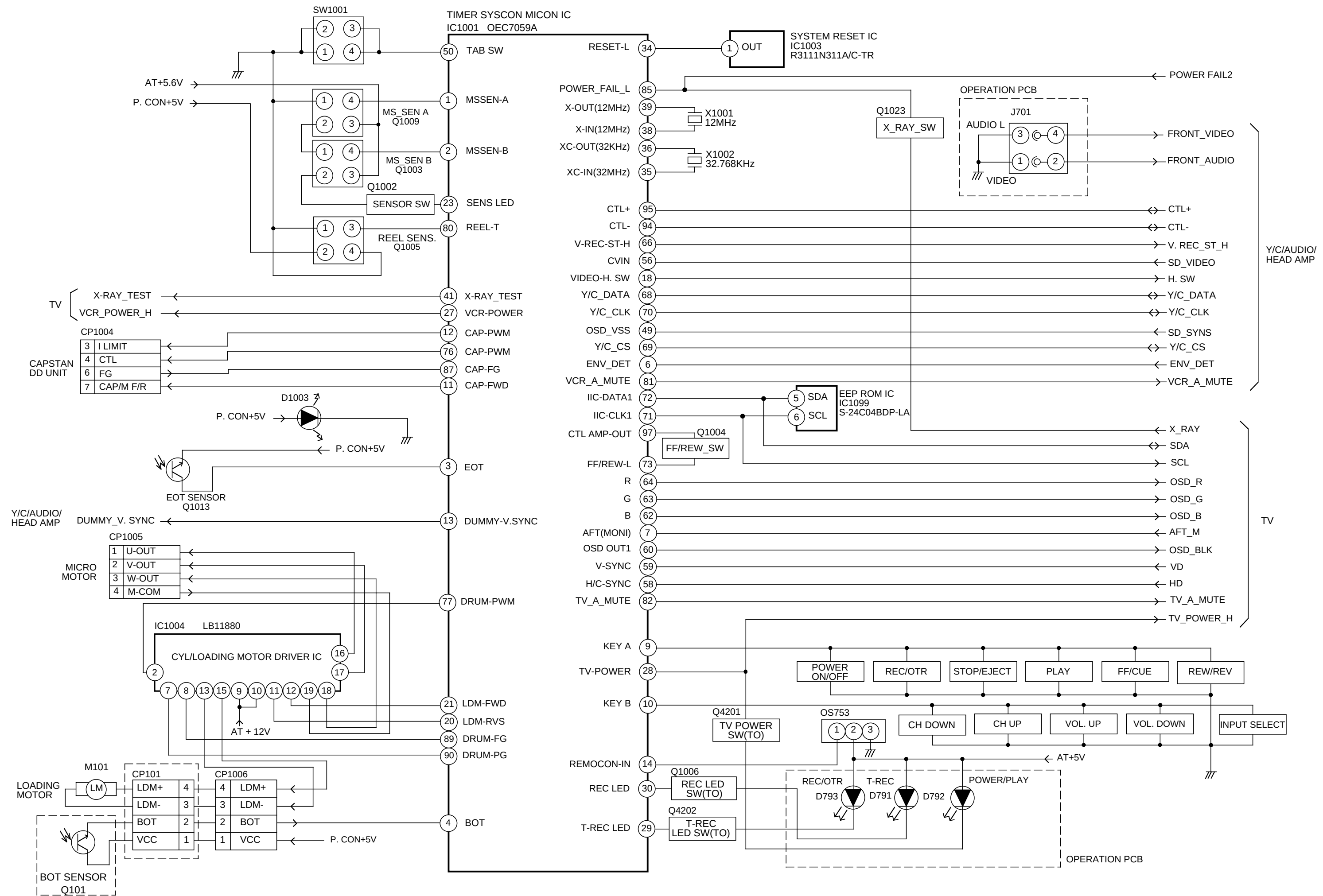
TV BLOCK DIAGRAM



Y/C/AUDIO/HEAD AMP BLOCK DIAGRAM

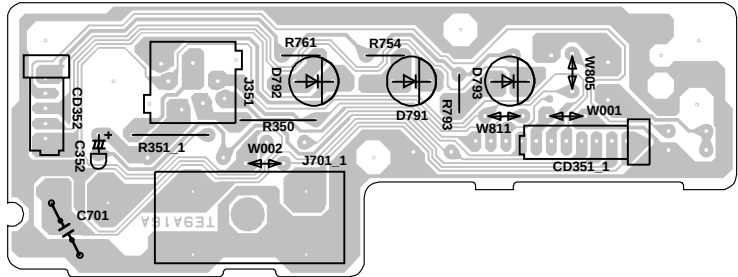


MICON/OPERATION/IN/OUT/DECK BLOCK DIAGRAM

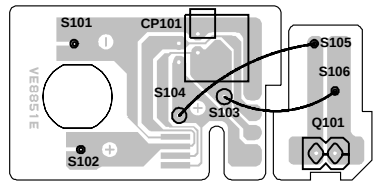


PRINTED CIRCUIT BOARDS

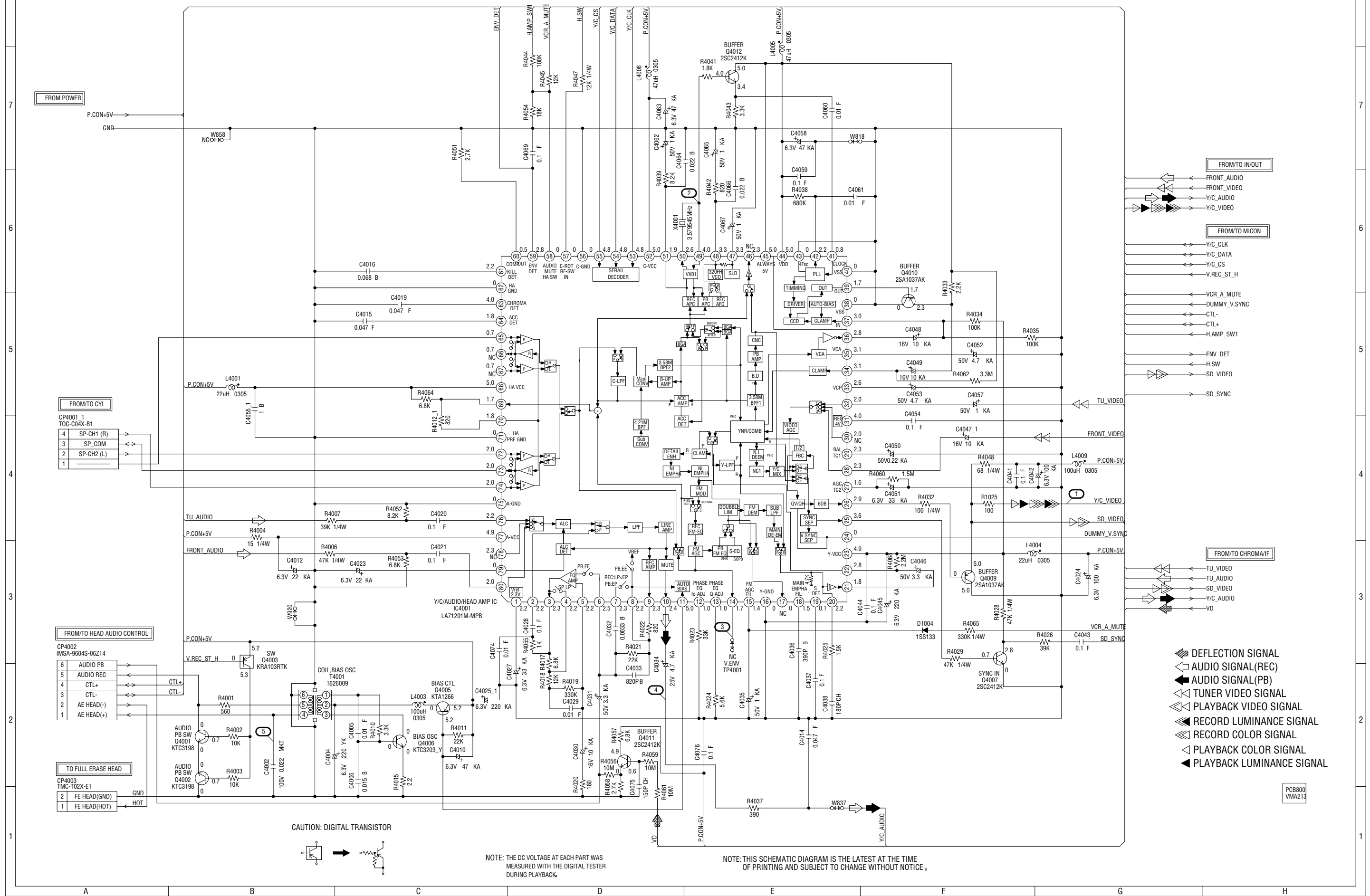
OPERATION
SOLDER SIDE



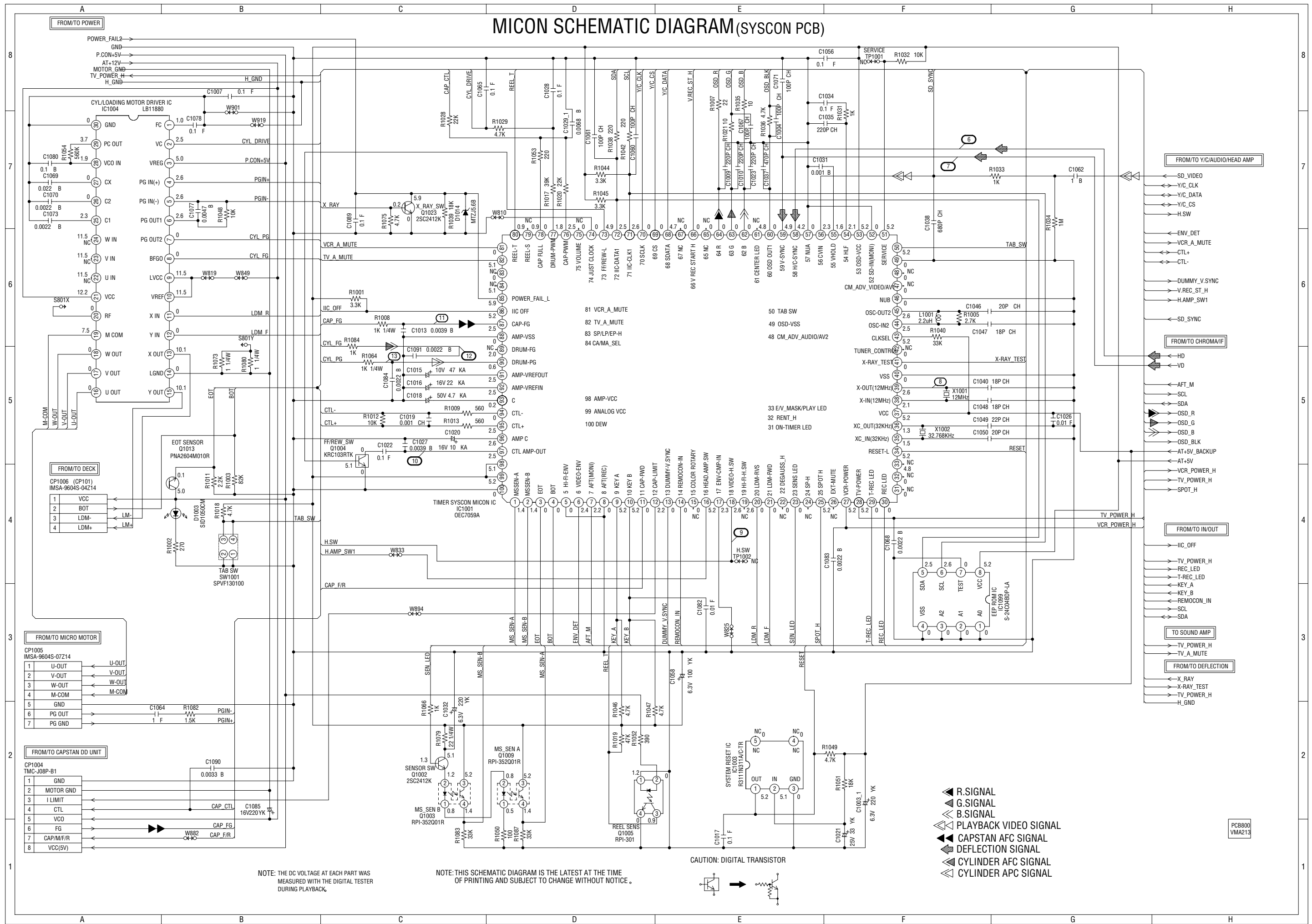
DECK
SOLDER SIDE



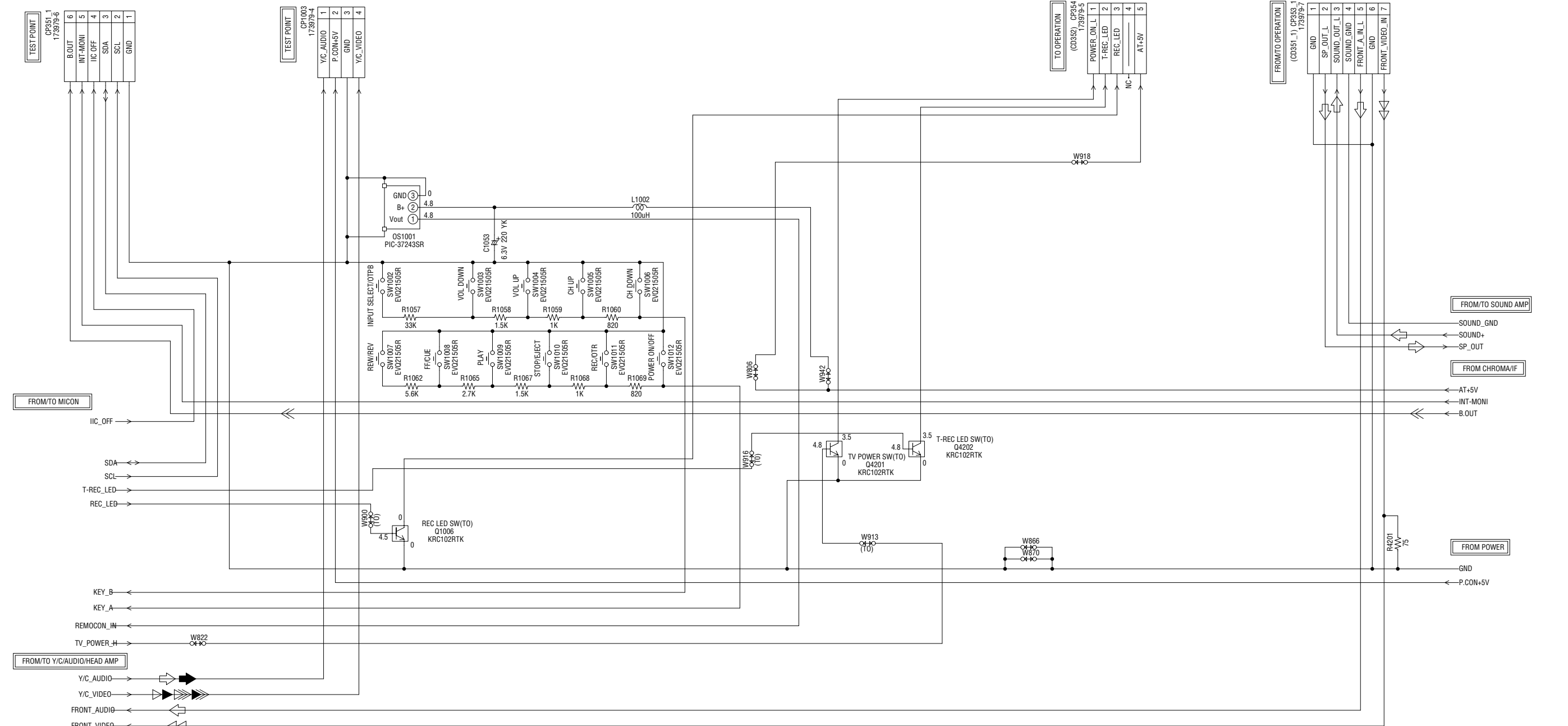
Y/C/AUDIO/HEAD AMP SCHEMATIC DIAGRAM (SYSCON PCB)



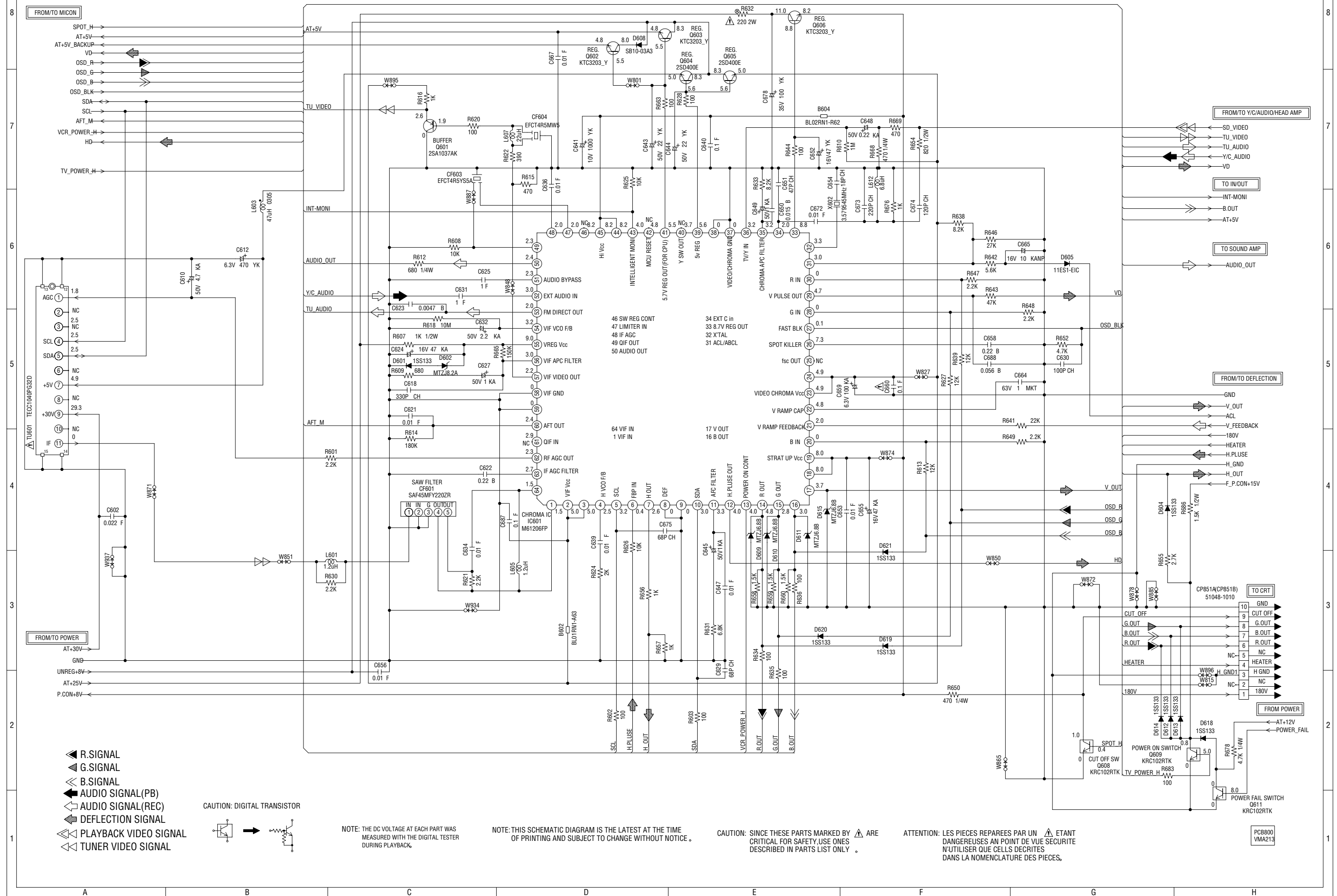
MICON SCHEMATIC DIAGRAM(SYSCON PCB)



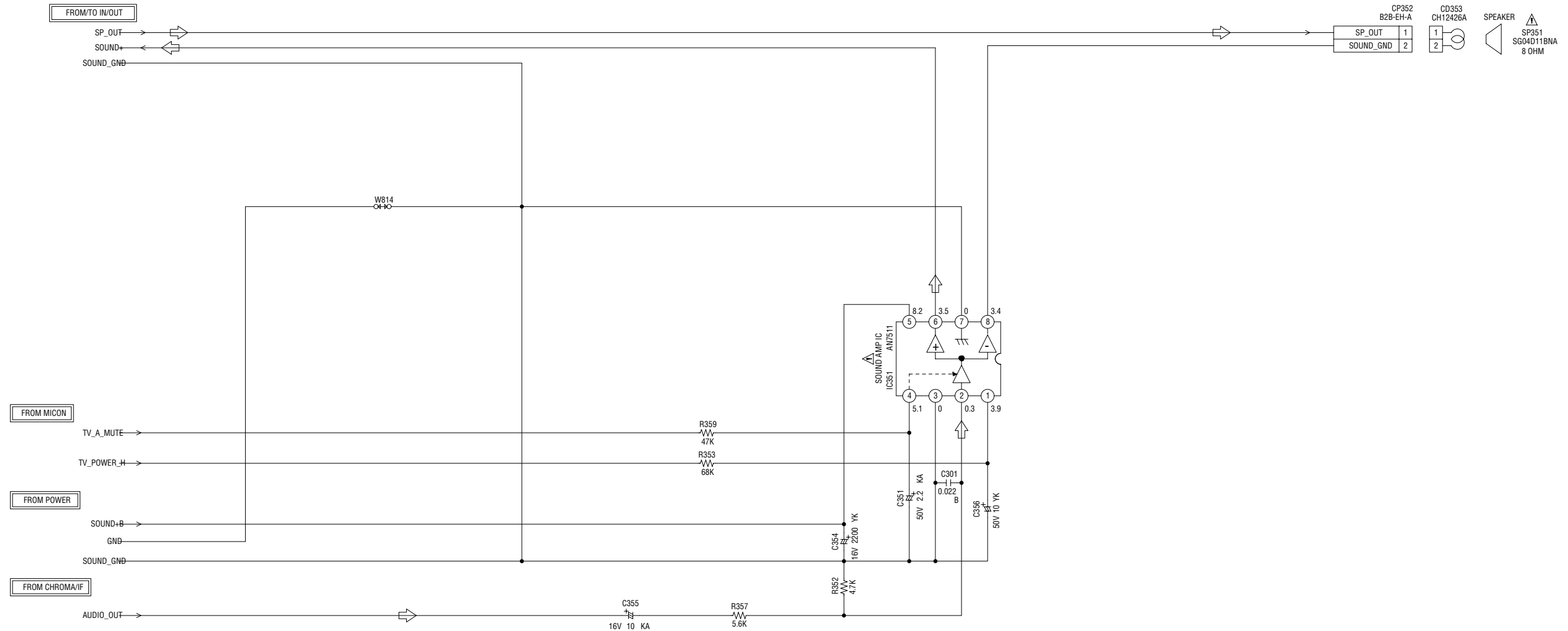
IN/OUT SCHEMATIC DIAGRAM (SYSCON PCB)



CHROMA/IF SCHEMATIC DIAGRAM (SYSCON PCB)



SOUND AMP SCHEMATIC DIAGRAM (SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS
MEASURED WITH THE DIGITAL TESTER
DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE .

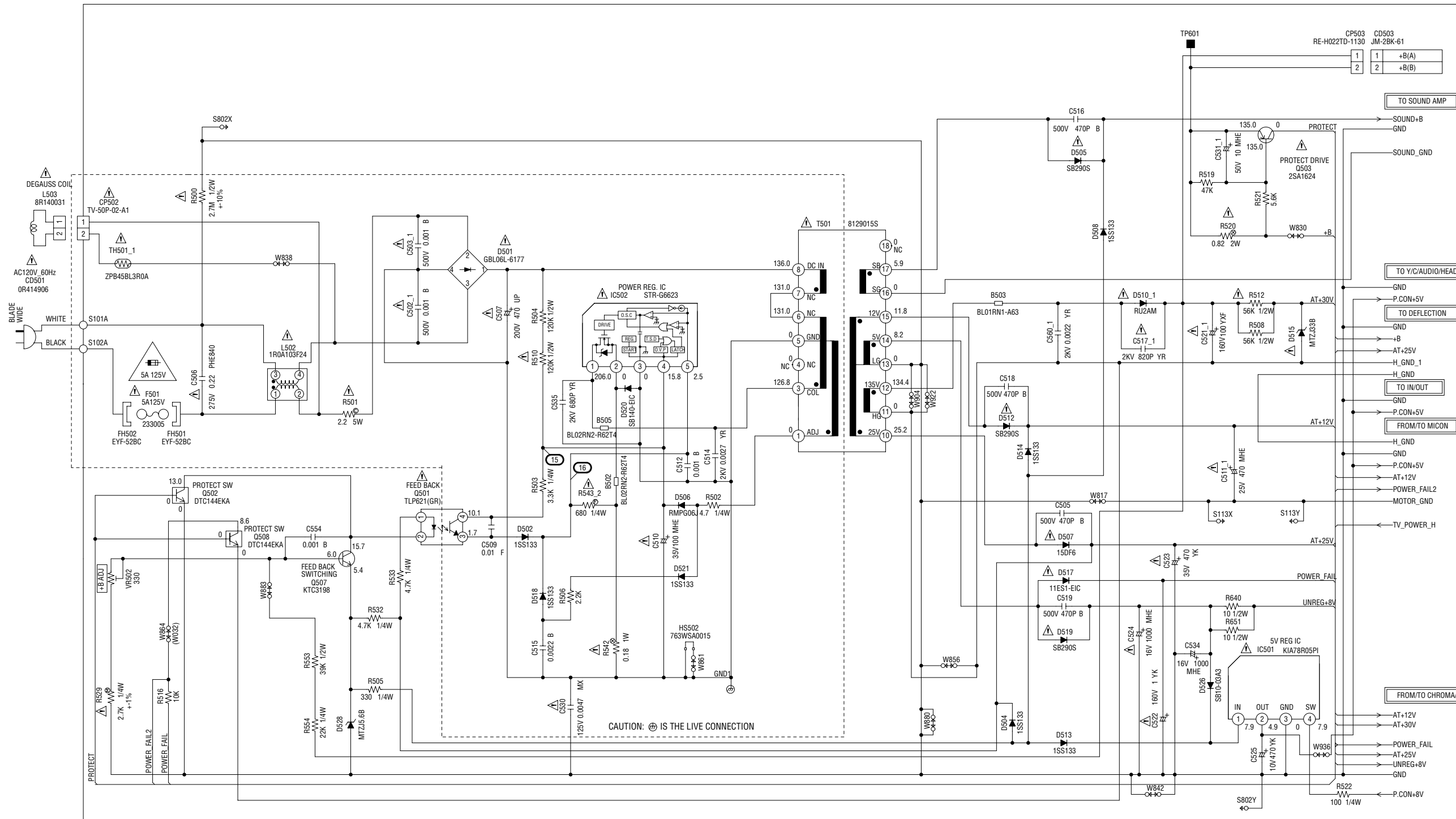
CAUTION: SINCE THESE PARTS MARKED BY ARE
CRITICAL FOR SAFETY, USE ONES
DESCRIBED IN PARTS LIST ONLY .

ATTENTION: LES PIECES REPARÉES PAR UN ETANT
DANGEREUSES AN POINT DE VUE SECURITE
N'UTILISER QUE CELLS DECRITES
DANS LA NOMENCLATURE DES PIECES.

← AUDIO SIGNAL(REC)

PCB800
VMA213

POWER SCHEMATIC DIAGRAM
(SYSCON PCB)



PCB800
VMA213



CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE
5A 125V (F501).

ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEPTE
N'UTILISER QUE DES FUSIBLE DE MEME TYPE
5A 125V (F501).

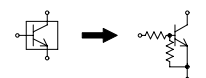
NOTE: THE DC VOLTAGE AT EACH PART WAS
MEASURED WITH THE DIGITAL TESTER
DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

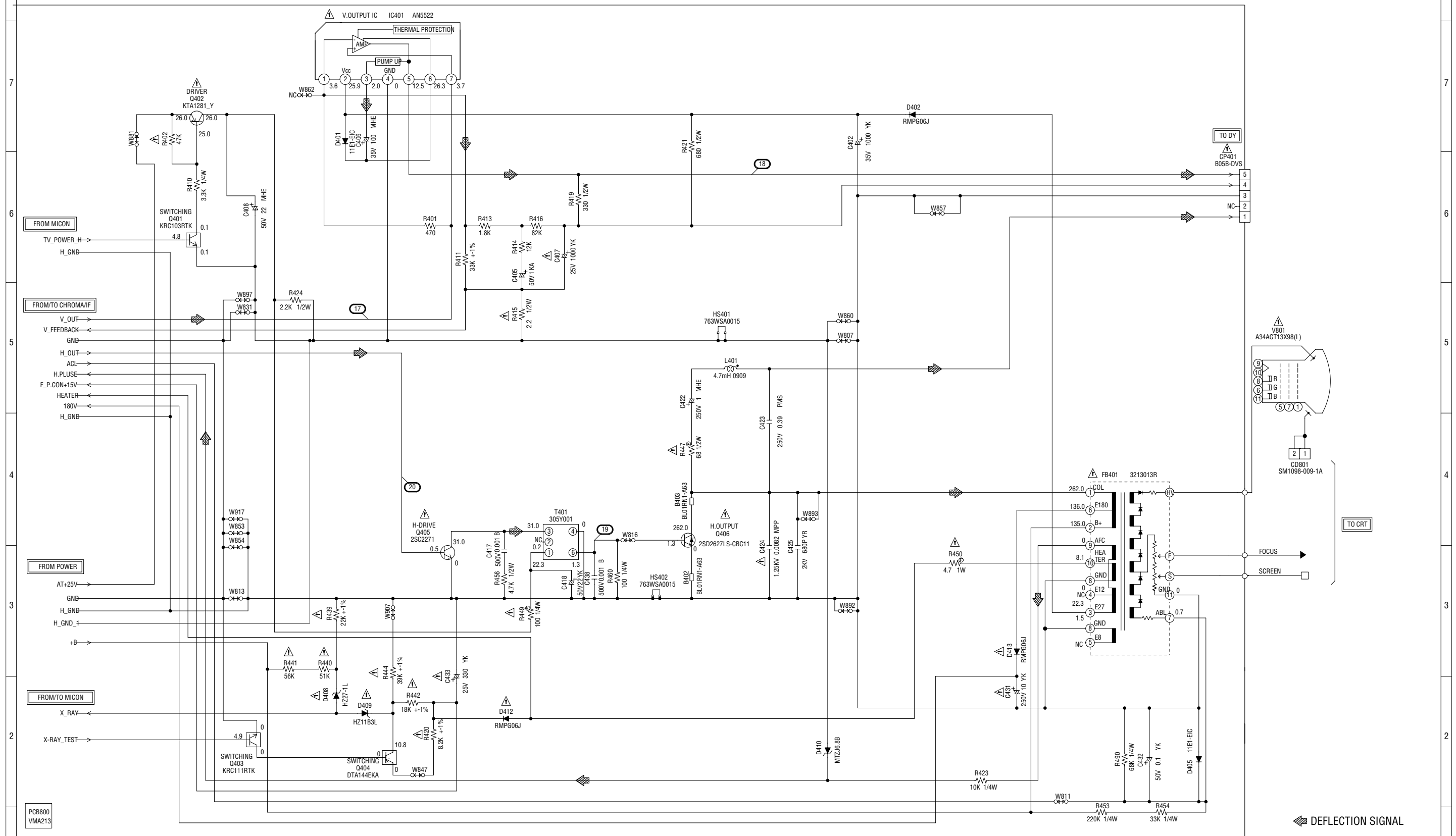
CAUTION: SINCE THESE PARTS MARKED BY  ARE
CRITICAL FOR SAFETY, USE ONES
DESCRIBED IN PARTS LIST ONLY.

ATTENTION: LES PIECES REPARÉES PAR UN  ÉTANT
DANGEREUSES AN POINT DE VUE SÉCURITÉ
N'UTILISER QUE CELLS DÉCRITES
DANS LA NOMENCLATURE DES PIÉCES.

CAUTION: DIGITAL TRANSISTOR



DEFLECTION SCHEMATIC DIAGRAM (SYSCON PCB)



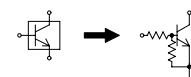
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

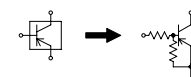
CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION: LES PIÈCES RÉPARÉES PAR UN ÉTANT DANGEREUSES AU POINT DE VUE SÉCURITÉ, N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

CAUTION: DIGITAL TRANSISTOR

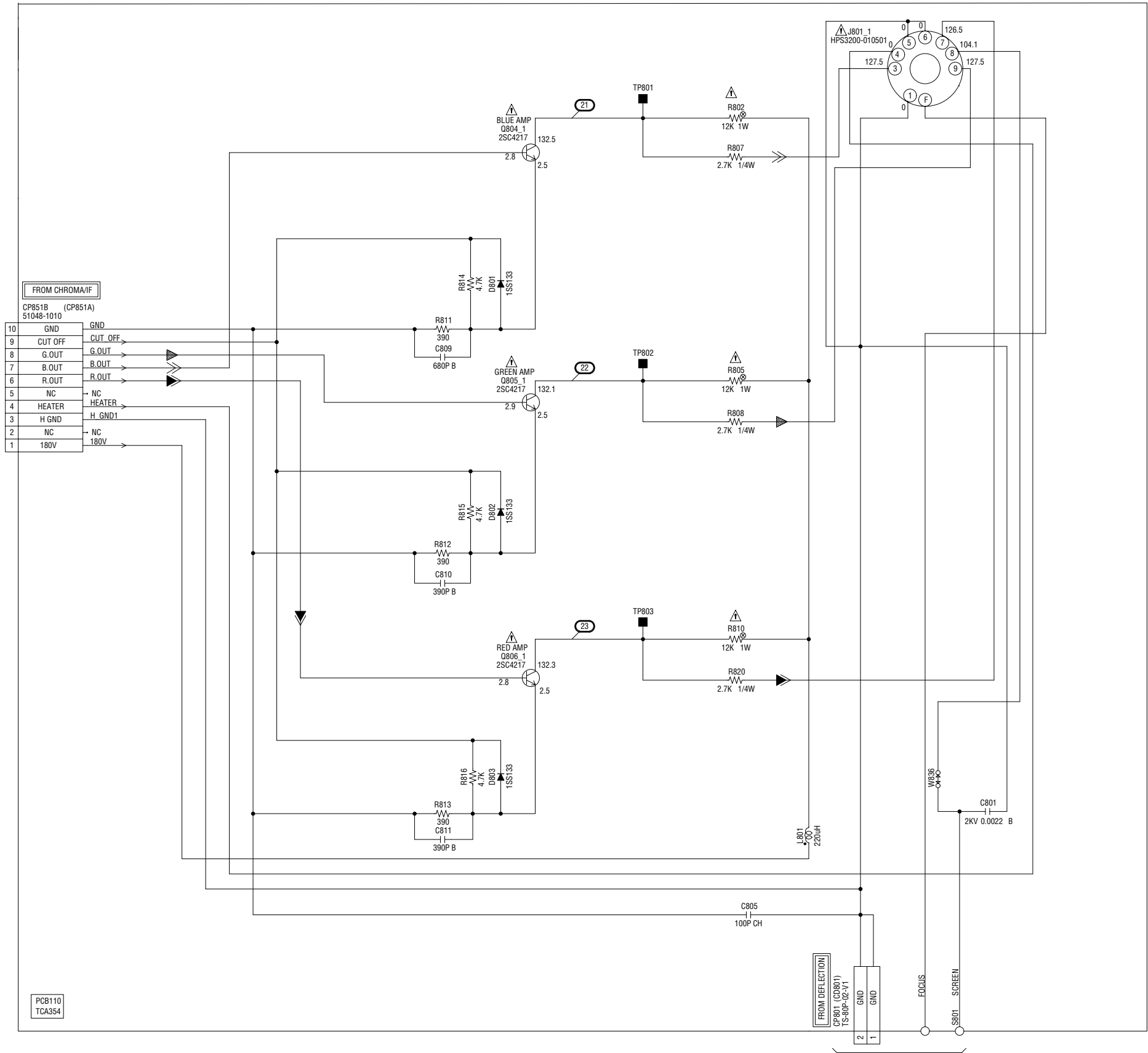


CAUTION: DIGITAL TRANSISTOR



DEFLECTION SIGNAL

CRT SCHEMATIC DIAGRAM
(CRT PCB)



FROM CHROMA/IF	
CP851B	(CP851A)
51048-1010	
10	GND
9	CUT OFF
8	G.OUT
7	B.OUT
6	R.OUT
5	NC
4	HEATER
3	H_GND
2	NC
1	180V

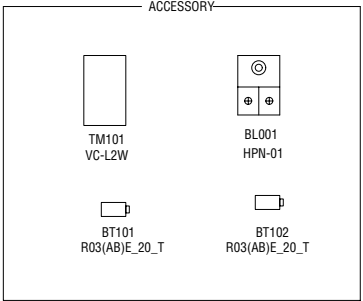
PCB110
TCA354

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE .

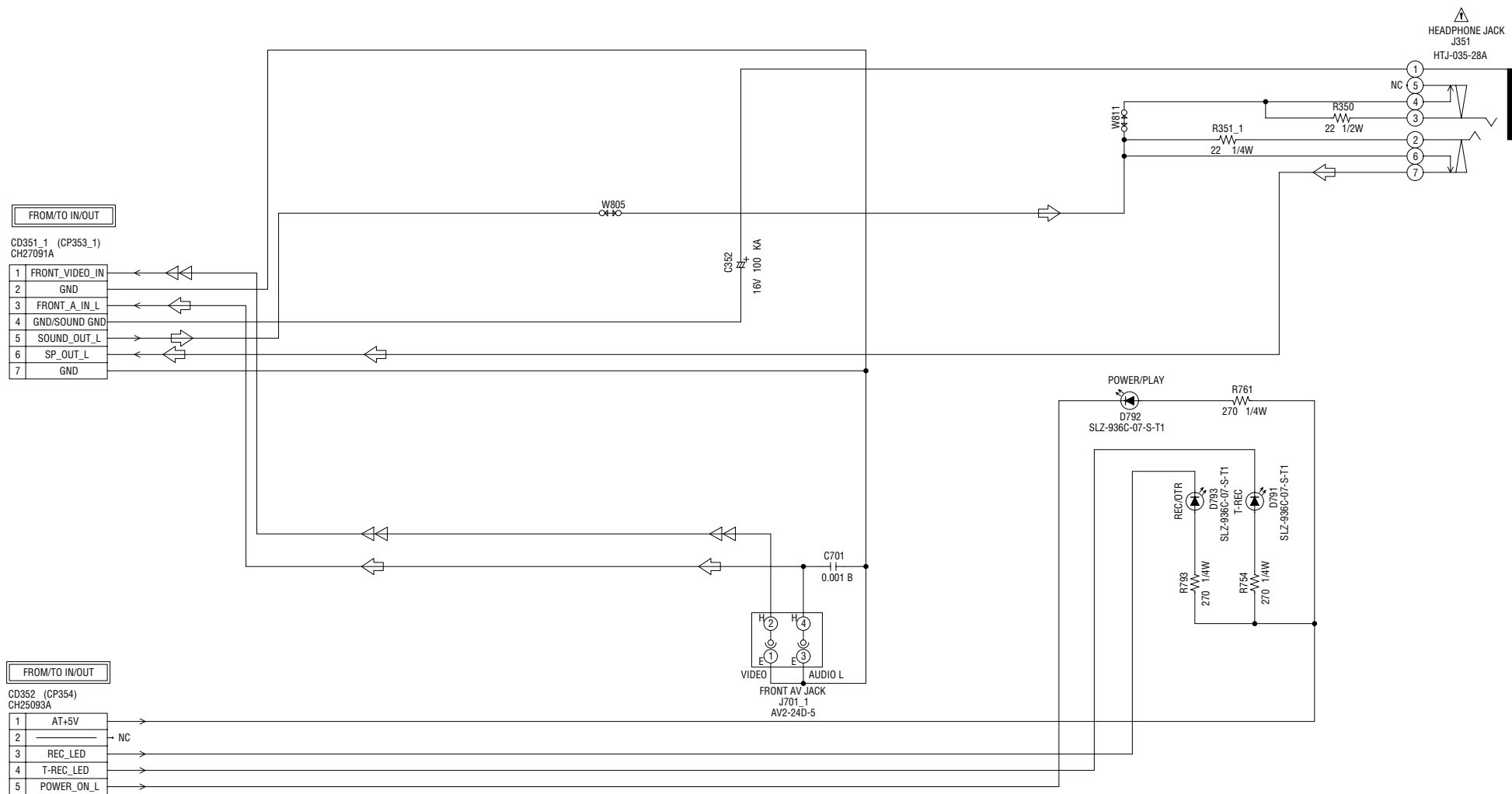
CAUTION: SINCE THESE PARTS MARKED BY ARE
CRITICAL FOR SAFETY, USE ONES
DESCRIBED IN PARTS LIST ONLY .

ATTENTION: LES PIECES REPARÉES PAR UN ETANT
DANGEREUSES AN POINT DE VUE SECURITE
N'UTILISER QUE CELLS DECRITES
DANS LA NOMENCLATURE DES PIECES.



◀ R.SIGNAL
◀ G.SIGNAL
◀ B.SIGNAL

OPERATION SCHEMATIC DIAGRAM
(OPERATION PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

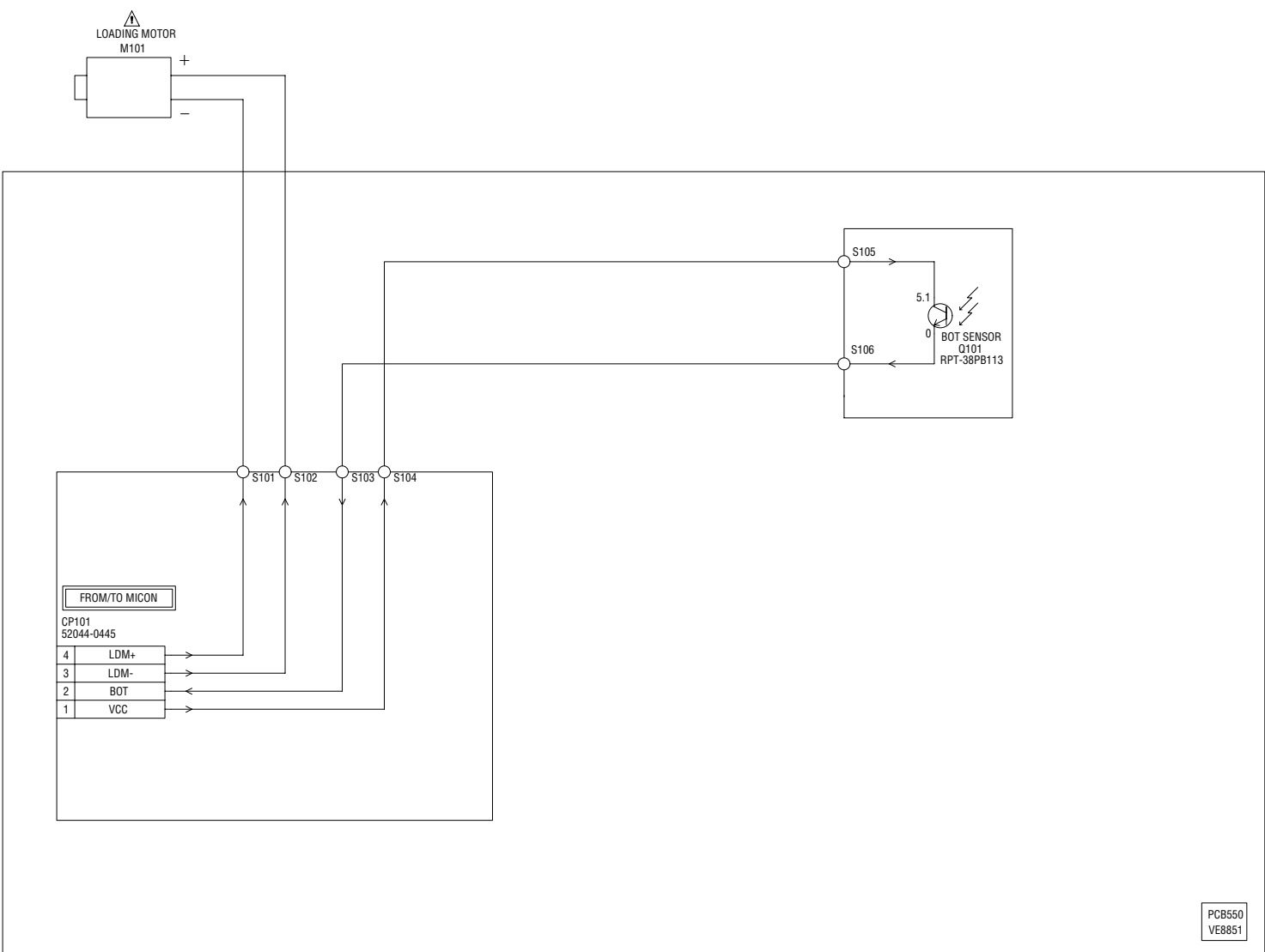
CAUTION: SINCE THESE PARTS MARKED BY ARE
CRITICAL FOR SAFETY, USE ONES
DESCRIBED IN PARTS LIST ONLY.

ATTENTION: LES PIECES REPARÉES PAR UN ETANT
DANGEREUSES AU POINT DE VUE SÉCURITÉ
N'UTILISER QUE CELLES DÉCRITES
DANS LA NOMENCLATURE DES PIÈCES.

AUDIO SIGNAL(REC)
 TUNER VIDEO SIGNAL

PCB030
TE9A16

DECK SCHEMATIC DIAGRAM
(DECK PCB)



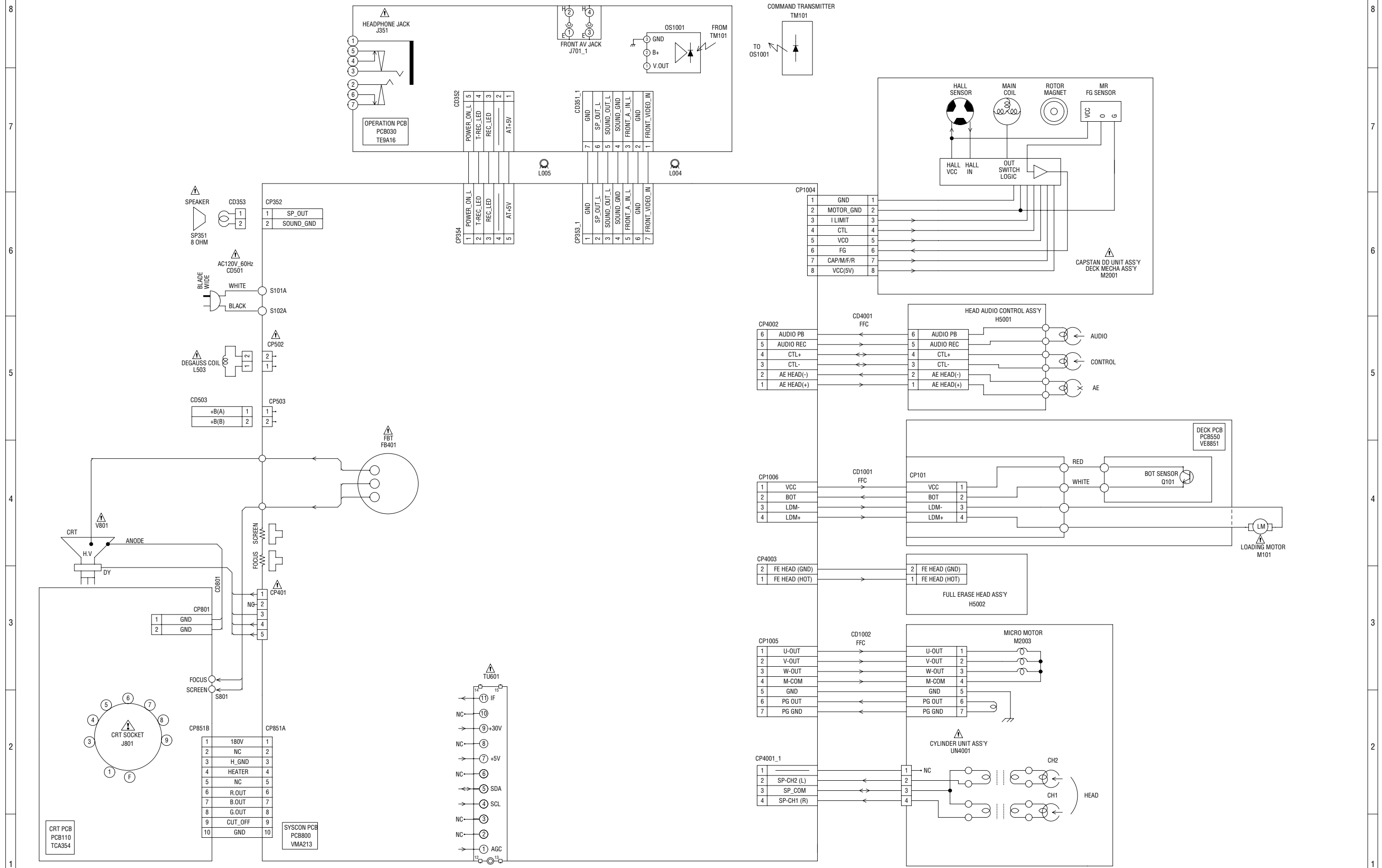
CAUTION: SINCE THESE PARTS MARKED BY  ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY .

ATTENTION: LES PIECES REPARÉES PAR UN  ÉTANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE .

INTERCONNECTION DIAGRAM

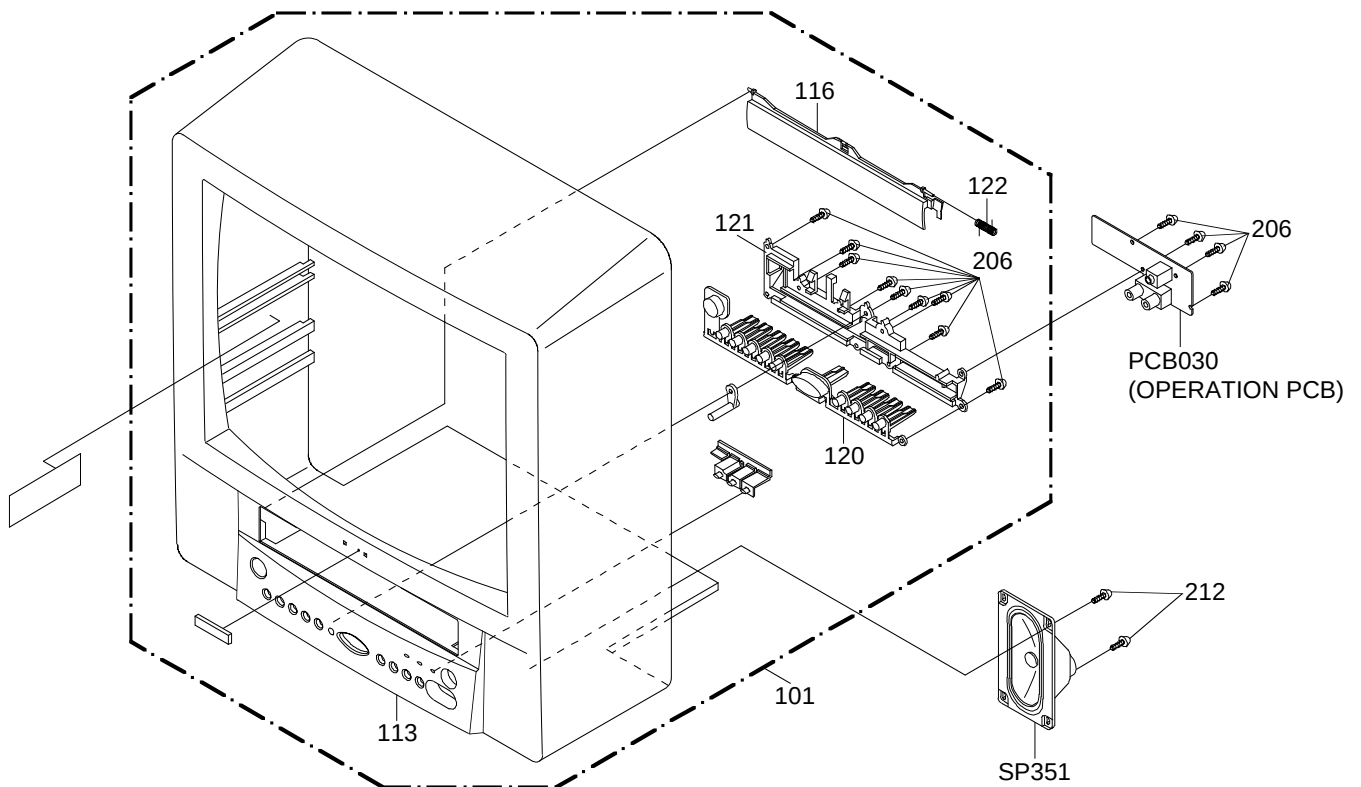
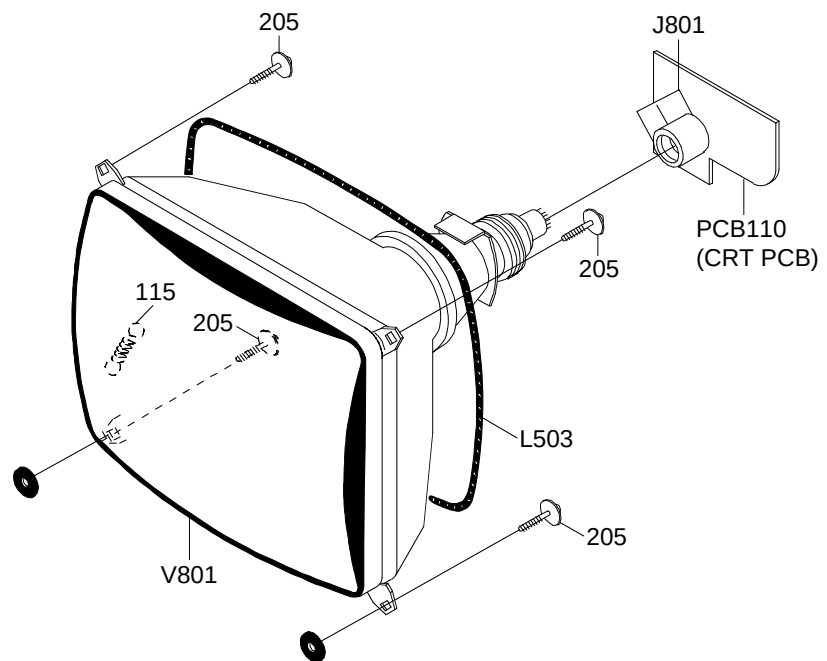


NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE .

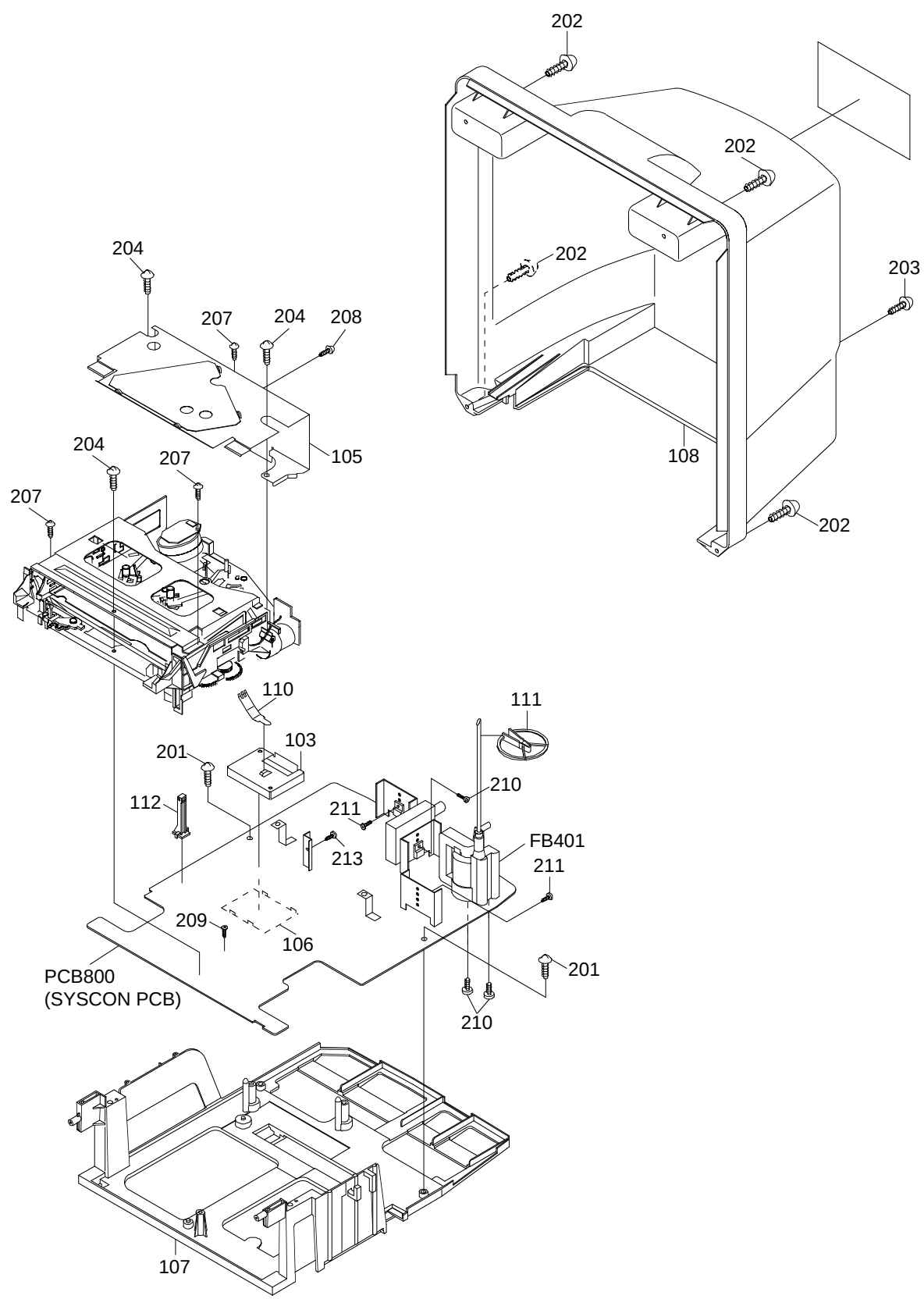
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY .

ATTENTION: LES PIECES REPARÉES PAR UN ⚠ ÉTANT DANGEREUSES AN POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLS DÉCRITES DANS LA NOMENCLATURE DES PIECES.

MECHANICAL EXPLODED VIEW

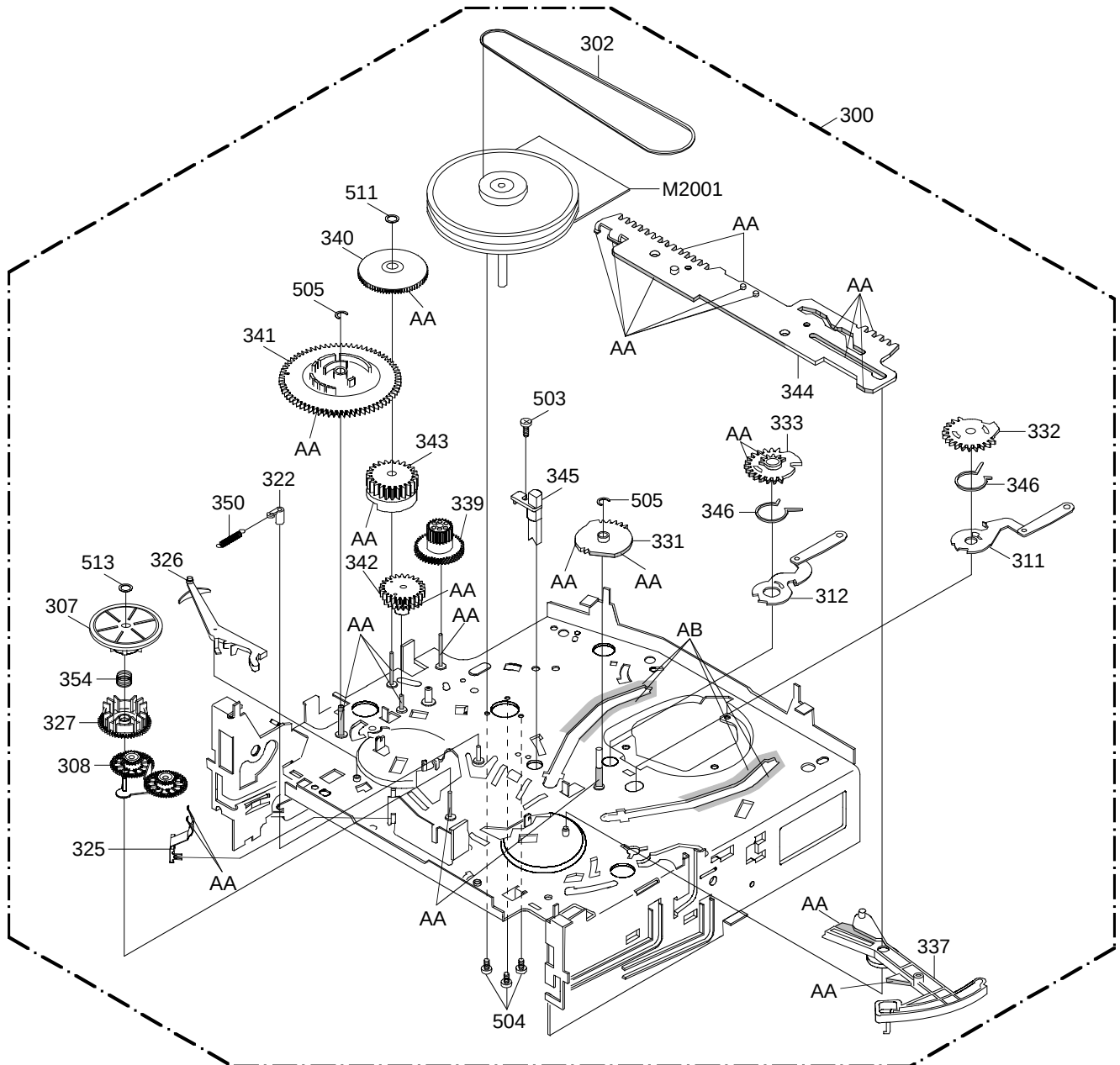


MECHANICAL EXPLODED VIEW



NOTE: Applying positions AA and BA for the grease or oil are displayed for this section.
Check if the correct grease or oil is applied for each position.

CHASSIS EXPLODED VIEW (BOTTOM VIEW)

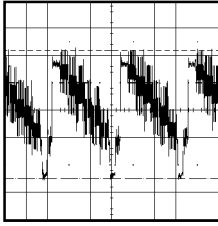


CLASS	MARK
GREASE	AA
OIL	BA

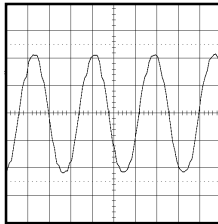
NOTE: Applying positions AA and BA for the grease or oil are displayed for this section. Check if the correct grease or oil is applied for each position.

WAVEFORMS

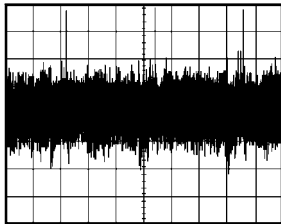
Y/C/AUDIO/HEAD AMP



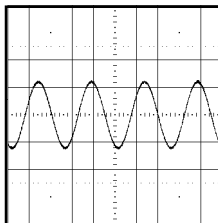
① PB
0.5V 20 μ s/div



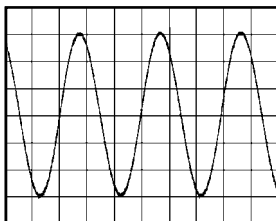
② POWER ON
100mV 0.1 μ s/div



③ PB
10mV 20 μ s/div

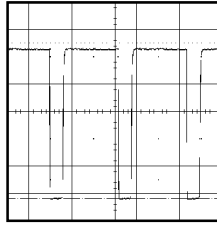


④ PB
0.5V 1ms/div

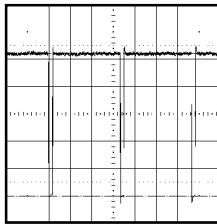


⑤ REC
10.0V 5 μ s/div

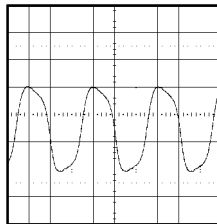
MICON



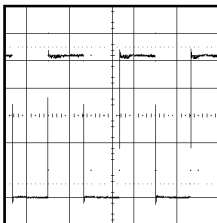
⑥ POWER ON
1.0V 20 μ s/div



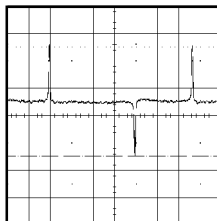
⑦ POWER ON
0.5V 10ms/div



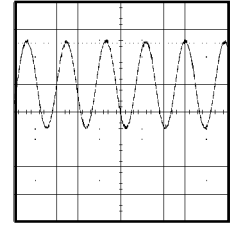
⑧ POWER ON
1.0V 10 μ s/div



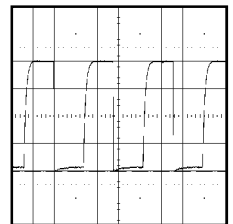
⑨ PB
1.0V 10ms/div



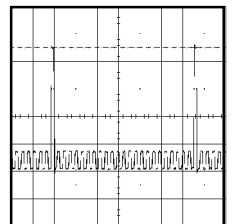
⑩ PB
1.0V 5ms/div



⑪ PB
0.5V 0.5ms/div

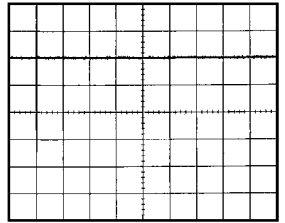


⑫ PB
1.0V 0.5ms/div

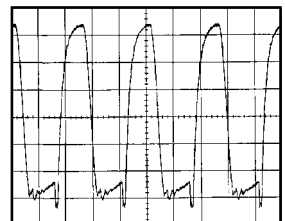


⑬ PB
1.0V 5ms/div

POWER



⑮ 5.0V 20ms/div

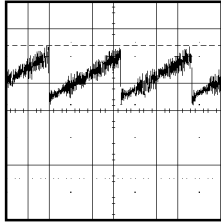


⑯ 500mV 5 μ s/div

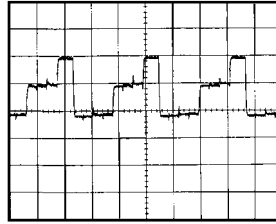
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

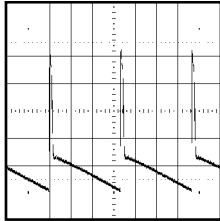
DEFLECTION



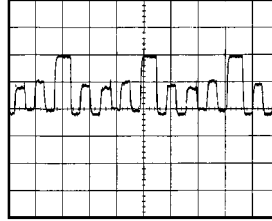
①⑦ 0.5V 5ms/div



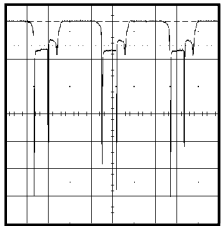
②② 50.0V 20 μ s/div



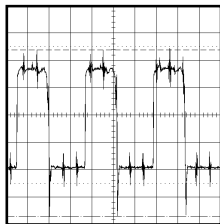
①⑧ 10.0V 5ms/div



②③ 50.0V 20 μ s/div

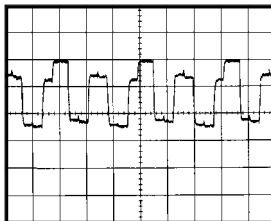


①⑨ 2.0V 20 μ s/div



②④ 200mV 20 μ s/div

CRT



②① 50.0V 20 μ s/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

MECHANICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
101	BZ610211	A57813A720	CABINET,FRONT ASSY	
103	BZ710328	752WSA0209	SHIELD,CASE HEAD AMP	
105	BZ710351	752WSA0232	PLATE,DECK SHIELD ASS'Y	
106	BZ710270	753WSA0130	SHIELD,COVER HEAD AMP	
107	BZ710329	761WPAA045	HOLDER,DECK	
108	BZ710330	702WPBA048	CABINET,BACK	
110	BZ710331	753WUAA006	SPRING,EARTH HEAD AMP	
111	BZ710260	899HV3T000	HOLDER,ANODE WIRE	
112	BZ710178	85OP700036	HOLDER,EOT SENSOR	
113	BZ710433	701WPJB301	CABINET,FRONT	
115	BZ710009	741WUA0019	SPRING,EARTH	
116	BZ710434	712WPJA983	FLAP	
120	BZ710435	735WPJA382	BUTTON,FRAME	
121	BZ710146	738WPA0016	BUTTON,BASE	
122	BZ710010	743WKA0032	SPRING,FLAP	
201	BZ710036	8117540B04	SCREW,TAPPING(B0) TRUSS	4x20
202	BZ710035	8117540A64	SCREW,TAPPING(B0) TRUSS	4x16
203	BZ710262	8117540A04	SCREW,TAPPING(B0) TRUSS	4x10
204	BZ710034	8117140A24	SCREW,TAPPING(B0) PAN	4x12
205	BZ710321	8121F50B84	SCREW,TAPPING(B0) GW20 FLAT	5x28
206	BZ710031	8110630A04	SCREW,TAP TITE(P) BRAZIER	3x10
207	BZ710030	8110630804	SCREW,TAP TITE(P) BRAZIER	3x8
208	BZ710017	8107226604	SCREW,TAP TITE(S) BIND	2.6x6
209	BZ710028	8110330804	SCREW,TAP TITE(P) FLAT	3x8
210	BZ710019	8109630802	SCREW,TAP TITE(B) BRAZIER	3x8
211	BZ710239	8109130A04	SCREW,TAP TITE(B) WH7	3x10
212	BZ710029	8110330A04	SCREW,TAP TITE(P) FLAT	3x10
213	BZ710352	8109130604	SCREW,TAP TITE(B) WH7	3x6
---	BZ710305	792WHA0286	PACKAGE,TOP	
---	BZ710306	792WHA0287	PACKAGE,BOTTOM	
---	BZ710436	793WCDA990	GIFT BOX	
---	BZ614202	J5780801	INSTRUCTION BOOK	

CHASSIS REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
300	BZ610157	A57808A420K	DECK ASSY
301	BZ710073	850A500022	AHC ASS'Y
302	BZ710193	850P200290	BELT,CAPSTAN (S)
303	BZ710132	850P900710	LEVER,REC
304	BZ710094	850P500083	BASE,AC HEAD
305	BZ710112	850P800324	SPRING,AC HEAD
306	BZ710354	850A000449	MAIN CHASSIS ASS'Y (3V)
307	BZ710195	850A200082	CLUTCH ASS'Y(S2)
308	BZ710355	850A200088	ARM,IDLER ASS'Y 3V
309	BZ710197	850P600556	ARM,SS BRAKE (S)
310	BZ710198	850P200292	REEL,T (S)
311	BZ710063	850A300061	LOADING ARM S ASS'Y
312	BZ710064	850A300062	LOADING ARM T ASS'Y
313	BZ710216	850P900714	COVER,SENSOR L3
314	BZ710356	850A400220	INCLINED BASE S UNIT 3V
315	BZ710357	850A400221	INCLINED BASE T UNIT 3V
316	BZ710200	850A400199	P5-3 ARM ASS'Y(S)
317	BZ710072	850A400205	PINCH ROLLER BLOCK
318	BZ710065	850A400175	TENSION ARM ASS'Y
319	BZ710374	850A400216	TENSION BAND ASS'Y 3V
320	BZ710067	850A400178	PINCH ROLLER LEVER ASS'Y
321	BZ710375	850A600197	BRAKE T ASS'Y 3V
322	BZ710359	850P500087	HOLDER,SPRING(SV)
323	BZ710360	850A900223	LINK UNIT(SV)
324	BZ710361	850P900716	LEVER,LINK(SV)
325	BZ710204	850P200284	LEVER,CLUTCH (S)
326	BZ710205	850P200285	ACTUATOR,CLUTCH
327	BZ710206	850P200298	GEAR,COUPLING(S2)
328	BZ710207	850P200291	REEL,S (S)
329	BZ710362	850P600566	WORM(SV)
330	BZ710363	850P600567	BRACKET,MOTOR(SV)
331	BZ710364	850P300193	GEAR,MAIN LOADING
332	BZ710087	850P300179	GEAR,LOADING S
333	BZ710088	850P300180	GEAR,LOADING T
334	BZ710365	850P300189	HOLDER,LOADING GEAR (S-ZV)
335	BZ710090	850P400472	ADJUST,TENSION
336	BZ710093	850P400492	HOLDER,TENSION
337	BZ710092	850P400490	LEVER,TENSION
338	BZ710366	850P400520	CAP.P4
339	BZ710097	850P600543	GEAR,JOINT
340	BZ710098	850P600544	GEAR,MIDDLE
341	BZ710367	850P600572	CAM,MAIN(S)
342	BZ710101	850P600546	CAM,P5
343	BZ710172	850P600565	CAM,PINCH ROLLER
344	BZ710210	850P600561	ROD,MAIN(S)
345	BZ710106	850P700035	REFLECTOR,LED
346	BZ710107	850P800318	SPRING,LOADING GEAR
347	BZ710211	850P800334	SPRING,P5 (S)
348	BZ710212	850P800335	SPRING,BRAKE T (S)
349	BZ710110	850P800322	SPRING,TENSION
350	BZ710213	850P800336	SPRING,CAP BRAKE (S)
351	BZ710118	850P800342	SPRING,LOCKER (S)
352	BZ710128	850P900695	BRACKET,TOP
353	BZ710217	850P900713	LOCKER,R2
354	BZ710115	850P800330	SPRING,RING
355	BZ710214	850P800337	SPRING,SS BRAKE (S)
356	BZ710119	850P900680	OPENER,CASS
357	BZ710368	850P900722	CASS SIDE L(SV)
358	BZ710369	850P900723	CASS SIDE R(SV)
359	BZ710314	850P900728	TAPE GUIDE L(P,R)
360	BZ710127	850P900694	SPRING,PACK
361	BZ710117	850P800341	SPRING,P/R ARM
362	BZ710123	850P900688	LEVER,FLAP
363	BZ710370	850P900717	CASS HOLDER(SV)
364	BZ710129	850P900696	SPRING,CASS EARTH
365	BZ710315	850P900729	TAPE GUIDE R

CHASSIS REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
501	BZ710048	8107126A04	SCREW,TAP TITE(S) PAN	2.6x10
502	BZ710049	8107226804	SCREW,TAP TITE(S) BIND	2.6x8
503	BZ710017	8107226604	SCREW,TAP TITE(S) BIND	2.6x6
504	BZ710050	8109126604	SCREW,TAP TITE(B) PAN	2.6x6
505	BZ710058	83ETW30000	E-RING	3.0
506	BZ710371	8107226404	SCREW,TAP TITE(S) BIND	2.6x4
507	BZ710046	8102120604	SCREW,PAN	M2x6
508	BZ710219	810A126504	SCREW/WASHER(A)	M2.6x5
509	BZ710241	810A130504	SCREW/WASHER(A)	M3x5
510	BZ710051	810A123504	SEMS A	M2.3x5.0
511	BZ710055	82P266005N	POLYSLIDER WASHER(CUT)	2.6x6.0xT0.5
512	BZ710218	82Q2647C5N	POLYSLIDER WASHER	2.6x4.7xT0.25
513	BZ710054	82P184505N	POLYSLIDER WASHER(CUT)	1.8x4.5xT0.5
CP101	BZ614040	069R740018	CONNECTOR PCB SIDE	52044-0445
H5001	BZ710040	1523D91034	HEAD (AUDIO CONTROL)	HVMXA1072A
H5002	BZ710041	1543D02013	HEAD (FULL ERASE)	HVFFHP0032A
△ M101	BZ710044	1596P78001	MOTOR (LOADING)	MXN13FB11H
△ M2001	BZ710372	1594S98001	CAPSTAN DD UNIT	F2QSB36
△ M2003	BZ710373	1589S11014	MICRO MOTOR	I2OAL03
PCB550	BZ610053	A4C831B550	DECK PCB ASS'Y	VE8851
Q101	BZ410026	0000700320	TRANSISTOR,PHOTO	RPT-38PB113
△ UN4001	BZ610158	A4E101A500	CYLINDER UNIT ASS'Y	A4E101A500

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
RESISTORS			
△ R415	BZ210053	R002T22R2J	RC 2.2 OHM 1/2W
△ R420	BZ210070	R801R7822F	RC 8.2K OHM 1/10W
△ R439	BZ210072	R801R7223F	RC 22K OHM 1/10W
△ R440	BZ210142	R903N8513J	RC 51K OHM 1/8W
△ R441	BZ210143	R903N8563J	RC 56K OHM 1/8W
△ R442	BZ210144	R801R7183F	RC 18K OHM 1/10W
△ R444	BZ210145	R801R7393F	RC 39K OHM 1/10W
△ R447	BZ210021	R65582680J	R,FUSE 68 OHM 1/2W
△ R449	BZ210078	R65584101J	R,FUSE 100 OHM 1/4W
△ R450	BZ210116	R655814R7J	R,FUSE 4.7 OHM 1W
△ R500	BZ210080	R0G3K2275K	RC 2.7M OHM 1/2W
△ R501	BZ210146	R5Y2CD2R2J	R,CEMENT 2.2 OHM 5W
△ R510	BZ210081	R002T2124J	RC 120K OHM 1/2W
△ R520	BZ210009	R3X28AR82J	R,METAL 0.82 OHM 2W
△ R529	BZ210084	R4X5T4272F	R,METAL 2.7K OHM 1/4W
△ R542	BZ210085	R33681R18J	R,METAL 0.18OHM 1W
△ R543	BZ210086	R635U4681J	R,FUSE 680 OHM 1/4W
R632	BZ210087	R3X18A221J	R,METAL OXIDE 220 OHM 2W
△ R802	BZ210089	R3X181123J	R,METAL 12K OHM 1W
△ R805	BZ210089	R3X181123J	R,METAL 12K OHM 1W
△ R810	BZ210089	R3X181123J	R,METAL 12K OHM 1W
R1080	BZ210148	R00104010J	RC 1 OHM 1/4W
CAPACITORS			
C354	BZ110135	E02L02222M	CE 2200 UF 16V
C402	BZ110077	E02L04102M	CE 1000 UF 35V
△ C407	BZ110078	E02L03102M	CE 1000 UF 25V
C423	BZ110136	P4J7F3394J	CMPP 0.39 UF 250V PMS
△ C424	BZ110137	P4N8FJ822H	CMPP 0.0082UF 1.25KV
△ C425	BZ110122	C0JLYR7U2K	CC 680 PF 2KV YR
△ C431	BZ110103	E02LTD100M	CE 10 UF 250V
△ C433	BZ110079	E02LT3331M	CE 330 UF 25V
△ C502	BZ110061	C0JTB0513K	CC 0.001 UF 500V B
△ C503	BZ110061	C0JTB0513K	CC 0.001 UF 500V B
△ C506	BZ110138	P2472B224M	CMP 0.22UF 275V PHE840
△ C507	BZ110012	E51CGC471M	CE 470 UF 200V
△ C510	BZ110018	E5E2T4101M	CE 100 UF 35V
△ C511	BZ110029	E5E2T3471M	CE 470 UF 25V
C514	BZ110113	C0JLYR7K3K	CC 0.0027UF 2KV YR
C517	BZ110114	C0JLYR7W2K	CC 820 PF 2KV YR
△ C521	BZ110139	E62NFB101M	CE 100 UF 160V
△ C530	BZ110140	C034F0JQ3M	CC 0.0047UF 125V MX
C535	BZ110122	C0JLYR7U2K	CC 680 PF 2KV YR
C560	BZ110115	C0JLYR7H3K	CC 0.0022UF 2KV YR
C701	BZ110098	CHGTB0413K	CC 0.001 UF 50V B
C801	BZ110141	C0HHB07H3K	CC 0.0022UF 2KV B
C4024	BZ110142	E50HT0101M	CE 100 UF 6.3V
DIODES			
D401	BZ410043	D2WT011E10	DIODE,SILICON 11E1-EIC
D402	BZ410014	D2LTPG06J0	DIODE,SILICON RMPG06J-G3
D405	BZ410043	D2WT011E10	DIODE,SILICON 11E1-EIC
△ D408	BZ410018	D94TA27011	DIODE,ZENER HZ27-1L TD
△ D409	BZ410017	D94TA11B13	DIODE,ZENER HZ11B3L TD
D410	BZ410022	D97U06R81B	DIODE,ZENER MTZJ6.8B T-77
△ D412	BZ410014	D2LTPG06J0	DIODE,SILICON RMPG06J-G3
△ D413	BZ410014	D2LTPG06J0	DIODE,SILICON RMPG06J-G3
△ D501	BZ410044	D4LZBL06L0	DIODE GBL06L-6177
D502	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D504	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
△ D505	BZ410076	D2WXB290S0	DIODE,SILICON SB290S
D506	BZ410014	D2LTPG06J0	DIODE,SILICON RMPG06J-G3
D507	BZ410057	D28015DF60	DIODE,SILICON 15DF6
D508	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
△ D510	BZ410028	D2BTRU2AM0	DIODE,SILICON RU2AM V1
△ D512	BZ410076	D2WXB290S0	DIODE,SILICON SB290S
D513	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D514	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
△ D515	BZ410037	D97U03301B	DIODE,ZENER MTZJ33B T-77
△ D517	BZ410059	D2WT11ES10	DIODE,SILICON 11ES1-EIC
D518	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
△ D519	BZ410076	D2WXB290S0	DIODE,SILICON SB290S
D520	BZ410077	D2WXS81400	DIODE,SCHOTTKY SB140-EIC
D521	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D526	BZ410008	D23U1003A3	DIODE,SCHOTTKY SB10-03A3
D528	BZ410021	D97U05R61B	DIODE,ZENER MTZJ5.6B T-77
D601	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D602	BZ410078	D97U08R21A	DIODE,ZENER MTZJ8.2AT-77
D604	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
DIODES			
D605	BZ410059	D2WT11ES10	DIODE,SILICON
D608	BZ410008	D23U1003A3	DIODE,SCHOTTKY
D609	BZ410022	D97U06R81B	DIODE,ZENER
D610	BZ410022	D97U06R81B	DIODE,ZENER
D611	BZ410022	D97U06R81B	DIODE,ZENER
D612	BZ410006	D1VT001330	DIODE,SILICON
D613	BZ410006	D1VT001330	DIODE,SILICON
D614	BZ410006	D1VT001330	DIODE,SILICON
D615	BZ410022	D97U06R81B	DIODE,ZENER
D618	BZ410006	D1VT001330	DIODE,SILICON
D619	BZ410006	D1VT001330	DIODE,SILICON
D620	BZ410006	D1VT001330	DIODE,SILICON
D621	BZ410006	D1VT001330	DIODE,SILICON
D791	BZ410005	002132Q130	LED
D792	BZ410005	002132Q130	LED
D793	BZ410005	002132Q130	LED
D801	BZ410006	D1VT001330	DIODE,SILICON
D802	BZ410006	D1VT001330	DIODE,SILICON
D803	BZ410006	D1VT001330	DIODE,SILICON
D1003	BZ410004	0010600060	LED
D1004	BZ410006	D1VT001330	DIODE,SILICON
D1014	BZ410021	D97U05R61B	DIODE,ZENER
ICS			
△IC351	BZ611001	I01DP75110	IC
△IC401	BZ611053	I01TD55220	IC
IC501	BZ611054	I1KA98R050	IC
△IC502	BZ611041	I2BT066230	IC
IC601	BZ611055	I06FC61206	IC
IC1001	BZ611056	I56F57059A	IC
△IC1003	BZ611057	IC7J0311A0	IC
IC1004	BZ611058	I03DQ18800	IC
IC1099	BZ610152	A57808A015	IC
IC4001	BZ611059	I03F3201M0	IC
TRANSISTORS			
Q401	BZ510067	TNAAC05002	COMPOUND TRANSISTOR
Q402	BZ510057	TAAT01281Y	TRANSISTOR,SILICON
Q403	BZ510068	TNAAJ05003	COMPOUND TRANSISTOR
Q404	BZ510049	TPYJD05001	COMPOUND TRANSISTOR
! Q405	BZ510010	TC3T022710	TRANSISTOR,SILICON
△Q406	BZ510036	TD30026270	TRANSISTOR,SILICON
Q501	BZ410055	0002500450	PHOTO COUPLER
Q502	BZ510045	TNYJD05001	COMPOUND TRANSISTOR
△Q503	BZ510004	TA3T016240	TRANSISTOR,SILICON
Q507	BZ510069	TCATC31980	TRANSISTOR,SILICON
Q508	BZ510045	TNYJD05001	COMPOUND TRANSISTOR
Q601	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON
Q602	BZ510070	TCAT032034	TRANSISTOR,SILICON
Q603	BZ510070	TCAT032034	TRANSISTOR,SILICON
Q604	BZ510042	TDWT00400E	TRANSISTOR,SILICON
Q605	BZ510042	TDWT00400E	TRANSISTOR,SILICON
Q606	BZ510070	TCAT032034	TRANSISTOR,SILICON
Q608	BZ510071	TNAAB05003	COMPOUND TRANSISTOR
Q609	BZ510071	TNAAB05003	COMPOUND TRANSISTOR
Q611	BZ510071	TNAAB05003	COMPOUND TRANSISTOR
△Q804	BZ510009	TC3F042170	TRANSISTOR,SILICON
△Q805	BZ510009	TC3F042170	TRANSISTOR,SILICON
△Q806	BZ510009	TC3F042170	TRANSISTOR,SILICON
Q1002	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON
Q1003	BZ410041	0002700530	PHOTO COUPLER
Q1004	BZ510067	TNAAC05002	COMPOUND TRANSISTOR
△Q1005	BZ410049	0002700590	PHOTO COUPLER
Q1006	BZ510071	TNAAB05003	COMPOUND TRANSISTOR
Q1009	BZ410041	0002700530	PHOTO COUPLER
Q1013	BZ410042	0000100380	PHOTO TRANSISTOR
Q1023	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON
Q4001	BZ510069	TCATC31980	TRANSISTOR,SILICON
Q4002	BZ510069	TCATC31980	TRANSISTOR,SILICON
Q4003	BZ510072	TPAAC05002	COMPOUND TRANSISTOR
Q4005	BZ510073	TAATA12660	TRANSISTOR,SILICON
Q4006	BZ510070	TCAT032034	TRANSISTOR,SILICON
Q4007	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON
Q4009	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON
Q4010	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON
Q4011	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON
Q4012	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON
Q4201	BZ510071	TNAAB05003	COMPOUND TRANSISTOR
Q4202	BZ510071	TNAAB05003	COMPOUND TRANSISTOR
			11ES1-EIC
			SB10-03A3
			MTZJ6.8B T-77
			MTZJ6.8B T-77
			MTZJ6.8B T-77
			1SS133T-77
			1SS133T-77
			1SS133T-77
			MTZJ6.8B T-77
			1SS133T-77
			1SS133T-77
			1SS133T-77
			SLZ-936C-07-S-T1
			SLZ-936C-07-S-T1
			SLZ-936C-07-S-T1
			1SS133T-77
			1SS133T-77
			1SS133T-77
			SID1050CM
			1SS133T-77
			MTZJ5.6B T-77
			AN7511
			AN5522
			KIA78R05PI
			STR-G6623
			M61206FP
			OEC7059A
			R3111N311A/C-TR
			LB11880
			S-24C04BDP-LA
			LA71201M-MPB
			KRC103RTK
			KTA1281_Y
			KRC111RTK
			DTA144EKAT146
			2SC2271(D,E)-AE
			2SD2627LS-CBC11
			TLP621(GR)
			DTC144EKAT146
			2SA1624-AA
			KTC3198-AT(Y,GR)
			DTC144EKAT146
			2SA1037AKT146R,S
			KTC3203_Y-AT
			KTC3203_Y-AT
			2SD400E
			2SD400E
			KTC3203_Y-AT
			KRC102RTK
			KRC102RTK
			KRC102RTK
			2SC4217(D,E)-RAC
			2SC4217(D,E)-RAC
			2SC4217(D,E)-RAC
			2SC2412KT146 R,S
			RPI-352Q01R
			KRC103RTK
			RPI-301
			KRC102RTK
			RPI-352Q01R
			PNA2604M010R
			2SC2412KT146 R,S
			KTC3198-AT(Y,GR)
			KTC3198-AT(Y,GR)
			KRA103RTK
			KTA1266-AT(Y,GR)
			KTC3203_Y-AT
			2SC2412KT146 R,S
			2SA1037AKT146R,S
			2SA1037AKT146R,S
			2SC2412KT146 R,S
			KRC102RTK
			KRC102RTK

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
COILS & TRANSFORMERS			
L401	BZ310004	021679472K	COIL 4.7 MH
△L502	BZ310099	029T000092	COIL,LINE FILTER 1R0A103F24
△L503	BZ310076	028R140031	COIL,DEGAUSS 8R140031
L601	BZ310101	0216A61R2K	COIL 1.2 UH
L603	BZ310040	02167F470J	COIL 47 UH
L605	BZ310112	021LA61R2K	COIL 1.2 UH
L607	BZ310058	021LA6220K	COIL 22 UH
L612	BZ310068	021LA66R8K	COIL 6.8 UH
L801	BZ310113	021673221K	COIL 220 UH
L1001	BZ310009	021LA62R2K	COIL 2.2 UH
L1002	BZ310079	021LA6101J	COIL 100 UH
L4001	BZ310039	02167F220J	COIL 22 UH
L4003	BZ310041	02167F101J	COIL 100 UH
L4004	BZ310039	02167F220J	COIL 22 UH
L4005	BZ310040	02167F470J	COIL 47 UH
L4006	BZ310040	02167F470J	COIL 47 UH
L4009	BZ310041	02167F101J	COIL 100 UH
T401	BZ310080	03305Y0018	TRANS,HORIZONTAL DRIVE 305Y001
△T501	BZ310094	048129015S	TRANSFORMER,SWITCHING 8129015S
T4001	BZ310114	031626009R	COIL,BIAS OSC 1626009
JACKS			
△J351	BZ614002	060G131014	RCA JACK HTJ-035-28A
J701	BZ614172	060Q401075	RCA JACK AV2-24D-5
△J801	BZ614004	066X120014	SOCKET,CATHODE RAY TUBE HPS3200-010501
SWITCHES			
SW1001	BZ612002	0508221001	SWITCH (LEAF) SPVF130100
SW1002	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW1003	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW1004	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW1005	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW1006	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW1007	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW1008	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW1009	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW1010	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW1011	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW1012	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
VARIABLE RESISTORS			
VR502	BZ210024	V1163L2BTC	VOLUME,SEMI FIXED EVNCYAA03BY2
P.C.BOARD ASSEMBLIES			
PCB030	BZ610153	A57808A03A	PCB ASS'Y TE9A16A
PCB110	BZ610154	A57808A11A	PCB ASS'Y TCA354A
PCB550	BZ610053	A4C831B550	SEE CHASSIS REPLACEMENT PARTS LIST
PCB800	BZ610210	A57813A01A	PCB ASS'Y VMA213A
MISCELLANEOUS			
B402	BZ310016	024AT03655	CORE BEADS BL01RN1-A63T6
B403	BZ310016	024AT03655	CORE BEADS BL01RN1-A63T6
B502	BZ310015	024AT03482	CORE,BEADS BL02RN2-R62T4
B503	BZ310016	024AT03655	CORE BEADS BL01RN1-A63T6
B505	BZ310015	024AT03482	CORE,BEADS BL02RN2-R62T4
B602	BZ310016	024AT03655	CORE BEADS BL01RN1-A63T6
B604	BZ310045	024AT03481	CORE,BEADS BL02RN1-R62T2
BL001	BZ310014	023C00022A	COIL BALUN HPN-01
CD351	BZ614131	06CH27091A	CORD CONNECTOR CH27091A
CD352	BZ614132	06CH25093A	CORD CONNECTOR CH25093A
CD353	BZ614096	06CH12426A	CORD CONNECTOR CH12426A
△CD501	BZ614259	120R414906	CORD AC BUSH 0R414906
CD503	BZ614133	069X620040	CONNECTOR JM-2BK-61
CD801	BZ614175	06CU82039A	CORD CONNECTOR SM1098-009-1A
CF601	BZ613014	1022T45R72	FILTER,SAW SAF45MFY220ZR
CF603	BZ613015	1011T4R504	FILTER,CERAMIC EFCT4R5YSSA
CF604	BZ613016	1011T4R517	FILTER,CERAMIC EFCT4R5MW5
CP351	BZ614135	0694260139	CONNECTOR PCB SIDE 173979-6
CP352	BZ614019	069X120249	CONNECTOR PCB SIDE B2B-EH-A
CP353	BZ614102	0694270139	CONNECTOR PCB SIDE 173979-7
CP354	BZ614136	0694250139	CONNECTOR PCB SIDE 173979-5
△CP401	BZ614020	069X450029	CONNECTOR PCB SIDE B05B-DVS
△CP502	BZ614018	069W420029	CONNECTOR PCB SIDE TV-50P-02-A1
CP503	BZ614137	069X620030	CONNECTOR PCB SIDE RE-H022TD-1130
CP801	BZ614017	069W320018	CONNECTOR PCB SIDE TS-80P-02-V1
CD1002	BZ614198	122F071901	CORD JUMPER 2F071901
CP1003	BZ614138	0694240139	CONNECTOR PCB SIDE 173979-4
CP1004	BZ614010	0697280590	CONNECTOR PCB SIDE TMC-J08P-B1
CP1005	BZ614086	069J770029	CONNECTOR PCB SIDE IMSA-9604S-07Z14
CP1006	BZ614014	069J740029	CONNECTOR PCB SIDE IMSA-9604S-04Z14
CP4001	BZ614054	0697240600	CONNECTOR PCB SIDE TOC-C04X-B1
CP4002	BZ614050	069J760029	CONNECTOR PCB SIDE IMSA-9604S-06Z14

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
MISCELLANEOUS			
CP4003	BZ614009	0697120320	CONNECTOR PCB SIDE
CP851A	BZ614139	067R010019	WIRE HOLDER
CP851B	BZ614139	067R010019	WIRE HOLDER
CUS011	BZ710279	800WFAA006	CUSHION A
CUS012	BZ710149	800WFAA008	CUSHION C
EL001	BZ614043	124116281A	EYE LET
EL002	BZ614044	124120301A	EYE LET
△F501	BZ614177	081PC05004	FUSE
△FB401	BZ310082	043213013R	TRANSFORMER,FLYBACK
FH501	BZ614005	06710T0006	HOLDER,FUSE
FH502	BZ614005	06710T0006	HOLDER,FUSE
OS1001	BZ614199	077Q004017	REMOTE RECEIVER
△SP351	BZ614200	070C533019	SPEAKER
△TH501	BZ410079	DF5EL3R0A0	DEGAUSS ELEMENT
TM101	BZ614260	076N0DQ060	TRANSMITTER
△TU601	BZ610125	0145K00055	TUNER,VHF-UHF
△V801	BZ614141	098Q1404B2	CRT W/DY
X602	BZ613004	100CT3R505	CRYSTAL
X1001	BZ613002	100CT01207	CRYSTAL
X1002	BZ613006	100DA32R01	CRYSTAL
X4001	BZ613017	100CT3R502	CRYSTAL
RESISTOR			
	RC.....	CARBON RESISTOR	
CAPACITORS			
	CC.....	CERAMIC CAPACITOR	
	CE.....	ALUMI ELECTROLYTIC CAPACITOR	
	CP.....	POLYESTER CAPACITOR	
	CPP.....	POLYPROPYLENE CAPACITOR	
	CPL.....	PLASTIC CAPACITOR	
	CMP.....	METAL POLYESTER CAPACITOR	
	CMPL.....	METAL PLASTIC CAPACITOR	
	CMPP.....	METAL POLYPROPYLENE CAPACITOR	

TOSHIBA VIDEO PRODUCTS PTE. LTD.

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